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William Bruce Jr.

22 Albany Street

Edinburgh

MATHEMATICAL TABLES.

Printed by S. Hamilton, Weybridge.

Hugh Bruce

MATHEMATICAL TABLES;

CONTAINING THE

COMMON, HYPERBOLIC, AND LOGISTIC

LOGARITHMS,

ALSO

SINES, TANGENTS, SECANTS, & VERSED SINES

BOTH NATURAL AND LOGARITHMIC.

TOGETHER WITH

SEVERAL OTHER TABLES

USEFUL IN

MATHEMATICAL CALCULATIONS.

To which is prefixed,

A LARGE AND ORIGINAL HISTORY OF THE DISCOVERIES AND WRITINGS RELATING TO THOSE SUBJECTS;

WITH THE

COMPLETE DESCRIPTION AND USE OF THE TABLES.

THE FIFTH EDITION.

BY CHARLES HUTTON,

LL.D. F.R.S. &c.

AND LATE PROFESSOR OF MATHEMATICS IN THE ROYAL MILITARY ACADEMY, WOOLWICH.

LONDON:

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1811.

PREFACE.

The very ample introduction, prefixed to the following collection of Mathematical Tables, supersedes the necessity of using many words here by way of preface, and leaves little more to be mentioned than the necessity and occasion of this work, with some account of the contents and mode of execution.

The undertaking was occasioned by the great incorrectness of all the editions of Sherwin's or Gardiner's tables, and more especially by the bad arrangement in the fifth or last edition. Finding, as well from the report of others, as from my own experience, that those editions (to say nothing of the very improper alteration in the form of the table of sines, tangents, and secants in the last of them) were so very incorrectly printed, the errors being multiplied beyond all tolerable bounds, and no dependence to be placed on them for any thing of real practice, I was led to undertake the painful office of preparing a correct edition of another similar work. And I was lucky enough to meet with a bookseller of sufficient spirit to be at the great expense of printing the book, as well as to allow me what I demanded for my trouble in preparing it; which demand, however, was nothing adequate to the great labour attending it, as I was well aware that the profits of the book would not enable him fully to reward my pains.

I have in the first place, therefore, used all the means in my power to render the work correct. I began by collating the third or best edition of Sherwin's tables, with some others of the most perfect works of the same kind, as Briggs's, Vlacq's, Gardiner's quarto book, &c; by which means I detected many errors in each of them, which had not before been discovered; and of these, between twenty and thirty were in the two editions of Gardiner's quarto work, printed at London in 1742, and at Avignon in 1770; the errata of which two books are here printed at the end

of the tables in this work. But, besides detecting many unknown errors in the said third edition of Sherwin, which was no more than was expected, I discovered, with no small surprise, that the last figures in the table of logarithms were not uniformly true to the nearest unit, except in a very few pages at the beginning and end of the table; though Mr. Gardiner, the editor of that edition, had made the table correct in that respect in his own quarto work before mentioned, which was also printed in the same year 1742, with the said third edition of Sherwin! The errors from this cause, in that third edition, amounted to several thousands; and they have continued to run through all the editions of Sherwin ever since that time! But they are here corrected. Nor has less attention been employed in correcting the press, than in previously correcting the copy; every proof having been several times read over, and compared with the best of the books hitherto printed, by several persons attending to the reading of every proof-sheet.

But in giving this edition to the world, I was not satisfied with barely making it correct. I was aware that the materials themselves might be much improved; and I have accordingly enlarged, or otherwise greatly amended them, in various respects. Among the improvements of the old materials may be reckoned the following:—namely, in the large table of logarithms, the proportional parts, near the beginning, are more conveniently arranged, being now all placed in the same opening of the book where their corresponding differences occur; the logarithms to sixty-one figures are brought to their proper place in the book, and more conveniently disposed all in one page; the large table of sines, tangents, and secants, is more commodiously arranged, and rendered more distinct and convenient for use; the natural sines, tangents, secants, and versed sines, being all separated from the others, and placed all together on the left-hand pages, and the logarithmic ones facing them on the right-hand pages; the common differences, in both, set between the two columns to which each of them answers; and the versed sines here introduced into their proper place in the same pages with the sines, tangents, and secants. Besides these, there are some other alterations in the new tables here given, and the reader will find a number of very important improvements in the description and use of the whole; espe-

tially in the arithmetic of logarithms, and in the resolution of plane and spherical triangles, according to the present improved methods of calculation used by the Astronomer Royal, and other persons the most experienced in these matters.

The improvements in the tables, by the introduction of new matter, are both great and numerous. The tables numbered 2, 3, and 4, are here added, being an entire new set, with their differences, for finding numbers and logarithms to twenty places. The columns of common differences, in the pages of natural sines, &c, are now first introduced: As are also the tables of hyperbolic and logistic logarithms; the logarithmic sines and tangents for every second, in the first two degrees of the quadrant; together with a table of the length of arcs, a table to change common and hyperbolic logarithms from the one to the other, &c.—the uses and exemplifications of the whole being very amply detailed.

But the greatest alteration of all is the very extensive and new introduction here given, instead of the former inadequate and heterogeneous one, consisting of about 180 pages of new matter, on a methodical plan, containing the historical account and description of all trigonometrical writings, and the tables relating to that subject, both natural and logarithmic; besides the complete use of the tables in this work. Inventions are here ascribed to the proper authors, and their methods and improvements described and compared. This historical description will evidently appear to be the result of immense labour and reading. And, indeed, I have painfully gone over all the books which are here so minutely described; and that description with a detail in some degree adequate to their great merits; especially the works of Napier, Briggs, Kepler, &c; which was the more necessary, as the writings and methods of those great masters had not been any where properly described and discriminated, though they are in themselves highly curious and important.

These readings and commentaries have been carried on to an extent far beyond what was at first intended. But the tables having been in the press for the space of seven or eight years, I had thereby an opportunity of collecting and examining a still greater number of books; so that I was gradually led on, and my views and plans rendered still more

extensive and complete. This delay, therefore, though in many respects it proved very inconvenient and disagreeable, has at length been the occasion of rendering these commentaries more perfect and satisfactory.

Besides what immediately relates to trigonometrical subjects, the reader will here find many other curious and uncommon articles, relating to their several authors and their discoveries, which have occurred in the course of my reading, and which appeared of too much consequence to be passed over unnoticed, in the analysis of their several compositions. Among these, is the discovery of the first author of the binomial theorem, and the differential method, which are due to Mr. Henry Briggs, whose writings are replete with ingenious and original matter, and are well deserving to be more generally known and studied than they have been for some time past.

This long course of examination and description, however, having been carried on for so many years, at different intervals, and interrupted by various avocations, and by business of different kinds, it will be no wonder if this circumstance may have occasioned some inequalities in the style and composition of this history; and for which, therefore, should any such appear, it is hoped the occasion will plead an apology.

Woolwich,
Feb. 1785.

*** IN the large table of common logarithms, when the first of the last four figures in any logarithm changes from a 9 to a 0, in any line, in which case the first three or constant figures are prefixed to the next following line, instead of these three, it often happens that young beginners by mistake take out the three constant figures next above the said line. To guard against this error, the figures in this edition are so contrived, that where the said change happens, a bar is placed over the cipher, thus $\bar{0}$, in order to catch the eye, and remind the learner that the change there takes place.——In this edition, too, the black rules formerly drawn across the pages, at the intervals of every five, or six, or ten lines, have been taken out, leaving thin white spaces across the pages instead of them. These improvements, besides that of new and better formed figures here now intro-

duced, and other attentions, contribute to render this edition of the tables more convenient and correct than either of the former ones.

C. H.
Dec. 1800.

IN this *fifth edition*, several of the tables have been much enlarged and improved, and some new ones introduced. Thus, the first large table of logarithms, which heretofore extended only to 100000 numbers, is now enlarged by one whole sheet more, being continued to 108000 numbers. Also the tables on pages 196, 199, 202, 216, are all extended to more numbers than formerly. A new and extensive table of Hyperbolic Logarithms is introduced after the old one ending page 211. The lists of errors, discovered in the best books of logarithms, that have been printed in this country and elsewhere, are more enlarged and corrected. By all which improvements, this collection of tables is rendered much more useful and valuable, than any of the former editions.

LONDON,
May 1811.

Errata, in the Introduction.

Page 121, line 21, for Lansihangel, read Lanfihangel.
128, — 17, for log. $\frac{1}{2}$, read log. $\frac{3}{4}$.
149, — 4 from the bot. for x 1. read $x-1$.
157, — 5 from the bot. for $\overline{s.\frac{1}{2}.A}+B$, read $s.\frac{1}{2}.\overline{A+B}$.

In the Tables.

264, Nat. Tan. 8° 1′ should be 1408375.
265, Log. Vers. 8 22 ——— 8·0270578.
271, L. Covers. 11 52 ——— 9·9000202.
337, Log. Tan. 44 60 ——— 10·0000000.

Additional Errata in the French Tables of 1801.

In the logs. to 61 places, No. 14, col. 5, for 12992, read 12922.

In the Logistic Logarithms.

80′ 60″, for 8696, read 8697.
85 31, — 8481, — 8461.
85 33, — 8469, — 8459.

A short Abstract of the principal Contents, may be as follows:

1. *In the Introduction.*

2. *In the Tables themselves.*

INTRODUCTION.

I. OF TRIGONOMETRICAL TABLES.

NECESSITY, the fruitful mother of most useful inventions, gave birth to the various numeral tables which compose the following work. Astronomy has been cultivated from the earliest ages. The progress of that science, requiring numerous arithmetical computations of the sides and angles of triangles, both plane and spherical, gave rise to trigonometry; for those frequent calculations suggested the necessity of performing them by the property of similar triangles; and for the ready application of this property, it was necessary that certain lines described in and about circles, to a determinate radius, should be computed, and disposed in tables. Navigation, and the continually improving accuracy of astronomy, have also occasioned as perpetual an increase in the accuracy and extent of those tables. And this it is evident must ever be the case, the improvement of trigonometry uniformly following the improvement of those other useful sciences, for the sake of which it is more especially cultivated.

The ancients performed their trigonometry by means of the chords of arcs, which, with the chords of their supplemental arcs, and the constant diameter, formed all species of right-angled triangles. Beginning with the radius, and the arc whose chord is equal to the radius, they divided them both into 60 equal parts, and estimated all other arcs and chords by those parts, namely, all arcs by 60ths of that arc, and all chords by 60ths of its chord or of the radius. At least this method is as old as the writings of Ptolemy, who used the sexagenary arithmetic for this division of chords and arcs, and for astronomical purposes.—And this, by-the-by, may be the reason why the whole circumference is divided into 360, or 6 times 60, equal parts or degrees, the whole circumference being equal to 6 times the first arc, whose chord is equal to the radius: unless perhaps we are rather to seek for the division of the circle in the number of days in the year; for thus, the ancient year consisting of 360 days, the sun or earth in each day described the 360th part of the orbit; and thence might arise the method of dividing every circle into 360 parts; and radius being equal to the chord of 60 of those parts, the sexagesimal division, both of the radius and of the parts, might thence arise. Trigonometry however must have been cultivated long before the time of Ptolemy; and indeed Theon, in his commentary on

[illegible] Almagest, l. i. ch. 9., mentions a work of the philosopher [illegible], written about a century and a half before Christ, consisting of 12 books on the chords of circular arcs: which must have been [illegible] trigonometry. And Menelaus also, in the first century [illegible], wrote 6 books concerning subtenses or chords of arcs. He uses the word nadir (of an arc), which he defined to be the right line subtending the double of the arc; so that his nadir of an arc was the double of our sine of the same arc, or the chord of the double arc; and therefore whatever he proves of the former, may be applied to the latter, substituting the double sine for the nadir.

The radius has been since decimally divided; but the sexagesimal divisions of the arc have continued in use to this day. Indeed our countrymen, Briggs and Gellibrand, having a general dislike to all sexagesimal divisions, made an attempt at some reformation of this custom, by dividing the degrees of the arcs, in their tables, into centesms or hundredth parts, instead of minutes or 60th parts. The same was also recommended by Vieta, and others; and a decimal division of the whole quadrant* might perhaps soon have followed, had it not been for the tables of Vlacq, which came out a little after, to every 10 seconds, or 6th parts of a minute.—But the complete reformation would be, to express all arcs by their real lengths, namely, in equal parts of the radius decimally divided: according to which method I have nearly completed a table of sines and tangents.

It is not to be doubted that many of the ancients wrote on the subject of trigonometry, as being a necessary part of astronomy; though few of their labours on that branch have come to our knowledge, and still fewer of the writings themselves have been handed down to us. We are in possession of the three books of Menelaus, on spherical trigonometry; but the six books are lost which he wrote upon chords, being probably a treatise on the construction of trigonometrical tables.

The trigonometry of Menelaus was much improved by Ptolemy (Claudius Ptolomæus) the celebrated philosopher and mathematician. He was born at Pelusium, taught astronomy at Alexandria in Egypt, and died in the year of Christ 147, being the 78th year of his age. In the first book of his Almagest, Ptolemy delivers a table of arcs and chords, with the method of construction. This table contains 3 columns; in the first are the arcs to every half degree or 30 minutes; in the 2d are their chords, expressed in degrees, minutes and seconds, of which degrees the radius contains 60; and in the 3d column are the differences of the chords answering to 1 minute of the arcs, or the 30th part of the differences between the chords in the 2d column. In the construction of this table, among others, Ptolemy shows, for the first time that we know of, this property of any quadrilateral inscribed in a circle, namely, that the rectangle under the two diagonals, is equal to the sum of the two rectangles under the opposite sides.

This method of computation, by the chords, continued in use till about the middle centuries after Christ; when it was changed for that of the sines, which were about that time introduced into trigonometry

* This has lately been done by the French mathematicians, in their new logarithmic tables.

by the Arabians, who in other respects much improved this science, which they had received from the Greeks, introducing, among other things, the three or four theorems, or axioms, which are used at present as the foundation of our modern trigonometry.

The other great improvements that have been made in this branch, are due to the Europeans. These improvements they have gradually introduced since they received this science from the Arabians. And though these latter people had long used the Indian or decimal scale of arithmetic, it does not appear that they varied from the Greek or sexagesimal division of the radius, by which the chords and sines were expressed.

This alteration, it is said, was first made by George Purbach, who was so called from his being a native of a place of that name between Austria and Bavaria. He was born in 1423, studied mathematics and astronomy at the university of Vienna, where he was afterwards professor of those sciences, though but for a short time, the learned world quickly suffering a great loss by his immature death, which happened in 1462, at the age of 39 years only. Purbach, besides enriching trigonometry and astronomy with several new tables, theorems, and observations, supposed the radius to be divided into 600,000 equal parts, and computed the sines of the arcs, for every 10 minutes, in such equal parts of the radius, by the decimal notation.

This project of Purbach was completed by his disciple, companion, and successor, John Muller, or Regiomontanus, who was so called from the place of his nativity, the little town of Mons Regius, or Koningsberg, in Franconia, where he was born in the year 1436. Regiomontanus not only extended the sines to every minute, the radius being 600,000, as designed by Purbach, but afterwards, disliking that scheme as evidently imperfect, he computed them likewise to the radius 1,000,000, for every minute of the quadrant. He also introduced the tangents into trigonometry, the canon of which he called *fœcundus*, because of the many and great advantages arising from them. Besides these, he enriched trigonometry with many theorems and precepts. Through the benefit of all these improvements, except for the use of logarithms, the trigonometry of Regiomontanus is but little inferior to that of our own time. His treatise on both plane and spherical trigonometry, is in 5 books; it was written about the year 1464, and printed in folio at Nuremburg, in 1533. And in the fifth book are also various problems concerning rectilinear triangles, some of which are resolved by means of algebra: a proof that this science was not wholly unknown in Europe before the treatise of Lucas de Burgo. Regiomontanus died in 1476, at the age of 40 years only; being then at Rome, whither he had been invited by the Pope, to assist in the reformation of the Calendar, and where it was suspected he was poisoned by the sons of George Trebizonde, in revenge for the death of their father, which was said to have been caused by the grief he felt on account of the criticisms made by Regiomontanus on his translation of Ptolemy's Almagest.

Soon after this, several other mathematicians contributed to the improvement of trigonometry, by extending and enlarging the tables,

though few of their works have been printed; and particularly John Werner of Nuremburg, who was born in 1468, and died in 1528, and who it seems wrote five books on triangles.

About the year 1500, Nicholas Copernicus, the celebrated modern restorer of the true solar system, wrote a brief treatise on trigonometry, both plane and spherical, with the description and construction of the canon of chords, or their halves, nearly in the manner of Ptolemy; to which is subjoined a canon of sines, with their differences, for every 10 minutes of the quadrant, to the radius 100,000. This tract is inserted in the first book of his *Revolutiones Orbium Cœlestium*, first printed in folio at Nuremburg, 1543. It is remarkable that he does not call these lines *sines*, but *semisses subtensarum*, namely of the double arcs.—Copernicus was born at Thorn in 1473, and died in 1543.

In 1553 was published the *Canon Fœcundus*, or table of tangents, of Erasmus Reinhold, professor of mathematics in the academy of Wurtemburgh. He was born at Salfieldt in Upper Saxony, in the year 1511, and died in 1553.

To Francis Maurolyc, abbot of Messina in Sicily, we owe the introduction of the *Tabula Benefica*, or canon of secants, which came out about the same time, or a little before. But Lansberg erroneously ascribes this to Rheticus. And the tangents and secants are both ascribed to Reinhold, by Briggs, in his *Mathematica ab antiquis minus cognita*, (p. 30. Appendix to Ward's Lives of the Professors of Gresham College.)

Francis Vieta was born in 1540, at Fontenai, or Fontenai-le-Comte, in Lower Poitou, a province of France. He was master of requests at Paris, where he died in 1603, being the 63d year of his age. Among other branches of learning in which he excelled, he was one of the most respectable mathematicians of the 16th century, or indeed of any age. His writings abound with marks of great originality, and the finest genius, as well as intense application. Among them are several pieces relating to trigonometry, which may be found in the collection of his works published at Leyden in 1646, by Francis Schooten, besides another large and separate volume in folio, published in the author's lifetime at Paris in 1579, containing trigonometrical tables, with their construction and use; very elegantly printed, by the king's mathematical printer, with beautiful types and rules: the differences of the sines, tangents, and secants, and some other parts, being printed with red ink, for the better distinction; but inaccurately executed, as he himself testifies in page 323 of his other works above mentioned. The first part of this curious volume is entitled *Canon Mathematicus, seu ad Triangula, cum Appendicibus*, and contains a great variety of tables useful in trigonometry. The first of these is what he more peculiarly calls *Canon Mathematicus, seu ad Triangula*, which contains all the sines, tangents, and secants for every minute of the quadrant, to the radius 100,000, with all their differences; and towards the end of the quadrant the tangents and secants are extended to 8 or 9 places of figures. They are arranged like our tables at present, increasing on the left hand side to 45 degrees, and then returning upwards by the right hand side to 90 degrees: so that each number and its complement

stand on the same line. But here the canon of what we now call tangents is denominated *fœcundus*, and that of the secants *fœcundissimus*. For the general idea prevailing in the form of these tables, is, not that the lines represented by the numbers are those which are drawn in and about a circle, as sines, tangents, and secants, but the three sides of right-angled triangles; this being the way in which those lines had always been considered, and which still continued for some time longer. And therefore he considers the canon as a series of plane right-angled triangles, one side being constantly 100,000; or rather as three series of such triangles, for he makes a distinct series for each of the three varieties, namely, according as the hypotenuse, or the base, or the perpendicular, is represented by the constant number 100,000, which is similar to the radius. Making each side constantly 100,000, the other two sides are computed to every magnitude of the acute angle at the base, from 1 minute up to 90 degrees, or the whole quadrant. Each of the three series therefore consists of two parts, as representing the two variable sides of the triangle. When the hypotenuse is made the constant number 100,000, the two variable sides of the triangle are the perpendicular and base, or our sine and cosine; when the base is 100,000, the perpendicular and hypotenuse are the variable parts, forming the *canon fœcundus et fœcundissimus*, or our tangent and secant; and when the perpendicular is made the constant 100,000, the series contains the variable base and hypotenuse, or also *canon fœcundus et fœcundissimus*, or our cotangent and cosecant. Of course, therefore, the table consists of 6 columns, 2 for each of the 3 series, besides the two columns on the right and left for minutes, from 0 to 60 in each degree.

The second of these tables is similar to the first, but all in rational numbers, consisting, like *it*, of 3 series of 2 columns each; the radius, or constant side of the triangle, in each series, being 100,000, as before; and the other two sides *accurately* expressed in integers and rational vulgar fractions. So that we have here the canon of *accurate* sines, tangents, and secants; or a series of about 4300 rational right-angled triangles. But then the several corresponding arcs of the quadrant, or angles of those triangles, are not expressed. Instead of them, are inserted, in the first column next the margin, a series of numbers decreasing from the beginning to the end of the quadrant, which are called *numeri primi baseos*. It is from these numbers that Vieta constructs the sides of the 3 series of right-angled triangles, one side in each series being the constant number 100,000, as before. The theorems by which these series of rational triangles are computed from the *numeri primi baseos*, or marginal numbers, are inserted all in one page at the end of this second table, and in the modern notation they may be briefly expressed thus. Let p be the primary or marginal number on any line, and r the constant radius or number 100,000; then if r denote the hypotenuse of the right-angled triangle, the perpendicular and base, or the sine and cosine, will be respectively,

$$\frac{pr}{\frac{1}{4}p^2+1} \text{ and } r-\frac{2r}{\frac{1}{4}p^2+1}, \text{ (which last we may reduce to } \frac{\frac{1}{4}p^2-1}{\frac{1}{4}p^2+1}r).$$

When r denotes the base of the right-angled triangle, then the perpendicular and hypotenuse, or the tangent and secant, are expressed by $\frac{pr}{\frac{1}{4}p^2-1}$ and $r+\frac{2r}{\frac{1}{4}p^2-1}$, (which last we may reduce to $\frac{\frac{1}{4}p^2+1}{\frac{1}{4}p^2-1}r$); and when r denotes the perpendicular of the right-angled triangle, the base and hypotenuse, or the cotangent and cosecant, are then expressed by

$$\tfrac{1}{4}pr-\frac{r}{p} \text{ (or } \frac{\frac{1}{4}p^2-1}{p}r\text{), and } \tfrac{1}{4}pr+\frac{r}{p} \text{ (or } \frac{\frac{1}{4}p^2+1}{p}r\text{).}$$

So that Vieta's general values will be as we have here collected them together in the following expressions, immediately under the words sine, cosine, &c.; and just below Vieta's forms I have here placed the others to which they reduce and are equivalent, which are more contracted, though not so well adapted to the expeditious computation as Vieta's forms.

Sine	Cosine	Tangent	Secant	Cotangent	Cosecant
$\frac{pr}{\frac{1}{4}p^2+1}$	$r-\frac{2r}{\frac{1}{4}p^2+1}$	$\frac{pr}{\frac{1}{4}p^2-1}$	$r+\frac{2r}{\frac{1}{4}p^2-1}$	$\frac{1}{4}pr-\frac{r}{p}$	$\frac{1}{4}pr+\frac{r}{p}$
$\frac{p}{\frac{1}{4}p^2+1}r$	$\frac{\frac{1}{4}p^2-1}{\frac{1}{4}p^2+1}r$	$\frac{p}{\frac{1}{4}p^2-1}r$	$\frac{\frac{1}{4}p^2+1}{\frac{1}{4}p^2-1}r$	$\frac{\frac{1}{4}p^2-1}{p}r$	$\frac{\frac{1}{4}p^2+1}{p}r$

All these expressions, it is evident, are rational; and by assuming p of different values, from the first theorems Vieta computed the corresponding sides of the triangles, and so expressed them all in integers and rational fractions.

To the foregoing principal tables are subjoined several other smaller tables, or short specimens of large ones; as, a table of the sines, tangents, and secants for every single degree of the quadrant, with the corresponding lengths of the arcs, the radius being 100,000,000; another table of the sines, tangents, and secants, for each degree also, expressed in sexagesimal parts of the radius, as far as the 3d order of parts; also two other tables for the multiplication and reduction of sexagesimal quantities.

The second part of this volume is entitled *Universalium Inspectionum ad Canonem Mathematicum Liber singularis.* It contains the construction of the tables, a compendious treatise on plane and spherical trigonometry, with the application of them to a great variety of curious subjects in geometry and mensuration, treated in a very learned manner; as also many curious observations concerning the quadrature of the circle, the duplication of the cube, &c. Computations are here given of the ratio of the diameter of a circle to the circumference, and of the length of the sine of 1 minute, both to many places of figures; by which he found that the sine of 1 minute is between 2,908,881,959 and 2,908,882,056; also, the diameter of a circle being 1000, &c. that the perimeter of the inscribed and circumscribed polygon of 393216 sides, will be as follows:

perim. of the inscrib. polygon 314,159,265,35
perim. of the circum. polygon 314,159,265,37
and that therefore the circumference of the circle lies between those two numbers.

Though no author's name appears to the volume I have been describing, there can be no doubt of its being the performance of Vieta; for, besides bearing evident marks of his masterly hand, it is mentioned by himself in several parts of his other works collected by Schooten, and in the preface to those works by Elzevir the printer of them: as also in M. Montucla's *Histoire des Mathématiques*, which are the only notices I have ever seen or heard of concerning this book, the copies of which are so rare, that I never saw one besides that which is in my own possession.

In the other works of Vieta, published at Leyden in 1646, by Schooten, as mentioned above, there are several other pieces relating to trigonometry; some of which, on account of their originality and importance, are very deserving of particular notice in this place. And first, the very excellent theorems, here first of all given by our author, relating to angular sections, the geometrical demonstrations of which are supplied by that ingenious geometrician, Alexander Anderson, then professor of mathematics at Paris, but a native of Aberdeen, and cousin-german to Mr. David Anderson, of Finzaugh, whose daughter was the mother of the celebrated James Gregory, inventor of the Gregorian telescope. We find here, theorems of the chords (and consequently sines) of the sums and differences of arcs; and for the chords of arcs that are in arithmetical progression, namely, that the first or least chord is to the 2d, as any one after the 1st, is to the sum of the two next less and greater: for example, as the 2d to the sum of the 1st and 3d, and as the 3d to the sum of the 2d and 4th, and as the 4th to the sum of the 3d and 5th, &c.; so that, the 1st and 2d being given, all the rest are found from them by one subtraction and one proportion for each, in which the 1st and 2d terms are constantly the same. Next are given theorems for the chords of any multiples of a given arc or angle, as also the chords of their supplements to a semicircle, which are similar to the sines and cosines of the multiples of given angles; and the conclusions from them are expressed in this manner; 1st, that if c be the chord of the supplement of a given arc a, to the radius 1, then the chords of the supplements of the multiple arcs will be as in the annexed table:

Arcs	Chords of the Supplements.
$1a$	c
$2a$	$c^2 - 2$
$3a$	$c^3 - 3c$
[illegible]	$c^4 - 4c^2 + 2$
$5a$	$c^5 - 5c^3 + 5c$
$6a$	$c^6 - 6c^4 + 9c^2 - 2$
$7a$	$c^7 - 7c^5 + 14c^3 - 7c$
&c.	&c.

where the author observes that the signs are alternately + and −; that the vertical columns of numeral coefficients to the terms of the chords, are the several orders of figurate numbers, which he calls triangular, pyramidal, triangulo-triangular, triangulo-pyramidal, &c. *generated in the ordinary way by continual additions; not indeed from unity,* AS IN THE GENERATION OF POWERS, but beginning with the number 2; and

that the powers observe always the same progression: secondly, that if the chord of an arc a be called 1, and d the chord of the double arc $2a$, then the chords of the series of multiple arcs will be as in this table; where the author remarks as before on the law of the powers, signs, and coefficients; these being the orders of figurate numbers, raised from unity by continual additions, *after the manner of the genesis of powers*, which generation in that way he speaks of as a thing generally known, but without giving any hint how the coefficients of the terms of any power may be found from one another only, and independent of those of any other power, as it was afterwards, and first of all, I believe, done by Henry Briggs, about the year 1600: and 3dly, that if C be the chord of any arc a, to the radius 1, then the series of the chords and supplemental chords of the multiple arcs will be thus; where the values are alternately chords, and chords of the supplements of the arcs on the same line, and the law of the powers and coefficients as before, but every alternate couplet of lines having their signs changed.

Arcs	Chords.
$1a$	1
$2a$	d
$3a$	d^2-1
$4a$	d^3-2d
$5a$	d^4-3d^2+1
$6a$	d^5-4d^3+3d
$7a$	$d^6-5d^4+6d^2-1$
$8a$	$d^7-6d^5+10d^3-4d$
&c.	&c.

Arcs	Chords and Chords of Sup.
$1a$	Chord $=+C$
$2a$	Sup. Ch. $=-C^2+2$
$3a$	Chord $=-C^3+3C$
$4a$	Sup. ch. $=+C^4-4C^2+2$
$5a$	Chord $=+C^5-5C^3+5C$
$6a$	Sup. ch. $=-C^6+6C^4-9C^2+2$
$7a$	Chord $=-C^7+7C^5-14C^3+7C$
&c.	&c.

Another curious theorem is added to the above, for finding the sum of all these chords drawn in a semicircle, from one end of the diameter to every point in the circumference, those points dividing the circumference into any number of equal parts; namely, as the least chord is to the diameter, so is the sum of the said least chord and diameter and greatest chord, to double the sum of all the chords including the diameter as one of them.

As the above theorems are chiefly adapted for the chords of multiple angles, a few problems and remarks are then added (whether by Vieta or Anderson does not clearly appear, but I think by the latter) concerning the application of them, to the section of angles into submultiples, and thence to the computation of the chords or sines, or a canon of triangles. The general precept for the angular sections is this: select one of the above equations adapted to the proper number of the section, in which will be concerned the powers of the unknown or required quantity, as high as the index of the section; and from this equation find that quantity by the known methods for the resolution of equations. Examples are given of three different sections, namely, for 3, 5, and 7 equal parts, the forms of which are respectively these

$$3C - C^3 \ldots\ldots\ldots\ldots = g$$
$$5C - 5C^3 + C^5 \ldots\ldots\ldots\ldots = g$$
$$7C - 14C^3 + C^5 - C^7 \ldots\ldots\ldots = g$$

where g is the chord of the given arc or angle, and C the required chord of the 3d, 5th, or 7th part of it. And it is shown, geometrically, that the first of these equations has 2 real positive roots, the second 3, and the last 4; also from the same principles the relations of these roots are pointed out.

The method then annexed for constructing the canon of sines, from the foregoing theorems, is thus: By dividing the radius in extreme-and-mean ratio, is obtained the sine of 18 degrees; this quinquisected, gives the sine of 3° 36′. Again, by trisecting the arc of 60°, there is obtained the sine of 20°; this again trisected gives that of 6° 40′; and this bisected gives that of 3° 20′: Then, by the theorem for the difference of two arcs, there will be found the sine of 16′, the difference between 3° 36′ and 3° 20′: Lastly, by four successive bisections, will at length be found the sines of 8′, 4′, 2′, and 1′. This last being found, the sines of its multiples, and again of the multiples of these multiples, &c. throughout the quadrant, are to be taken by the proper theorems before laid down. And the same subject is still further pursued and explained, in the tract containing the answer given by Vieta, to the problem proposed to the whole world by Adrianus Romanus.

In the same collection of Vieta's works, from page 400 to 432, is given a complete treatise on practical trigonometry, containing rules for resolving all the cases of plane and spherical triangles, by the *Canon Mathematicus*, or table of sines, tangents and secants.

The next authors whose labours in this way have been printed, are Rheticus, Otho, and Pitiscus; to all of whom we owe very great improvements in trigonometry.

George Joachim Rheticus, professor of mathematics in the university of Wittemburg, and sometime pupil to Copernicus, died in 1576, in the 60th year of his age. He conceived, and executed, the great design of computing the triangular canon for every 10 seconds of the quadrant to the radius (1000000000000000), consisting of 1 followed by 15 ciphers. The series of sines which Rheticus computed to this radius, for every 10 seconds, and for every single second in the first and last degree of the quadrant, was published in folio at Francfort, 1613, by Pitiscus, who himself added a few of the first sines computed to the radius 1000000000000000000000000.

But the large work, or whole trigonometrical canon, computed by Rheticus, was published in 1596 by Valentine Otho, mathematician to the Electoral Prince Palatine. This vast work contains all the three series for the whole canon of right-angled triangles (being similar to the sines, tangents, and secants, by which names I shall call them), with all the differences of the numbers, to the radius 10000000000. Prefixed to these tables, are several books on their construction and use, in plane and spherical trigonometry, &c. Of these, the first three are by Rheticus himself; namely book the first, containing the demonstrations of 9 lemmas, concerning the properties of certain lines drawn in and about circles: the 2d book contains 10 propositions, relating to the sines and cosines of arcs, together with those of their sums and differences, their halves and doubles, &c. The 3d book teaches, in 13 pro-

positions, the construction of the canon to the radius 1000000000000000. By some of the common properties of geometry, having determined the sines of a few principal arcs, as 30°, 36°, &c. in the first proposition, by continual bisections he finds the sines of various other arcs, down to 45 minutes. Then in the 2d proposition, by the theorems for the sums and differences of arcs, he finds all the sines and cosines, up to 90 degrees, in a series of arcs differing by 1° 30′. And, in the 3d proposition, by the continual addition of 45′, he obtains all the sines and cosines in the series whose common difference is 45′. In the 4th proposition, beginning with 45′, and continually bisecting, he finds the sines and cosines of the series of half arcs, till he arrives at the arc of $14^{\text{viii}}\ 19^{\text{ix}}$, the sine of which is found to be 1, and its cosine 999999999999999. In the fifth proposition are computed the sine and cosine of 30″, or half a minute. In the 6th and 7th propositions are computed the sines and cosines for every minute, from 1′ to 45′, as well as of many larger arcs. The 8th proposition extends the computation for single minutes much further. In propositions 9 and 10 are computed the tangents and secants for all arcs in the series whose common difference is 45′; and these are deduced from the sines of the same arcs by one proportion for each. In the remaining three propositions, 11, 12, 13, are computed the tangents and secants for several small angles. And from all these primary sines, tangents, and secants, the whole canon is deduced and completed.

The remaining books in this work are by the editor Otho; namely, a treatise, in one book, on right-angled plane triangles, the cases of which are resolved by the tables: then right-angled spherical trigonometry, in four books; next oblique spherical trigonometry, in five books; and lastly, several other books, containing various spherical problems.

Next after the above are placed the tables themselves, containing the sines, tangents, and secants, for every 10 seconds in the quadrant, with all the differences annexed to each, in a smaller character. The numbers however are not called sines, tangents, and secants, but, like Vieta's before described, they are considered as representing the sides of right-angled triangles, and titled accordingly. They are also, in like manner, divided into three series, namely, according as the radius, or constant side of the triangle, is made the hypotenuse, or the greater leg, or the less leg of the triangle. When the hypotenuse is made the constant radius 10000000000, the two columns of this case, or series, are called the perpendicular and base, which are our sine and cosine; when the greater leg is the constant radius, the two columns of this series are titled hypotenuse and perpendicular, which are our secant and tangent; and when the less leg is constant, the two columns in this case are called hypotenuse and base, which are our cosecant and cotangent. After this large canon, is printed another smaller table, which is said to be the two columns of the third series, or cosecants and cotangents, with their differences, but to 3 places of figures less, or to the radius 10000000. But I cannot discover the reason for adding this less table, even if it were correct, which is very

far from being the case, the numbers being uniformly erroneous, and different from the former through the greatest part of the table.

Towards the close of the 16th century, many persons wrote on the subject of trigonometry, and the construction of the triangular canon. But, their writings being seldom printed till many years afterwards, it is not easy to assign their order in respect of time. I shall therefore mention but a few of the principal authors, and that without pretending to any great precision on the score of chronological precedence.

In 1591 Philip Lansberg first published his *Geometria Triangulorum*, in four books, with the canon of sines, tangents, and secants; a brief, but very elegant work; the whole being clearly explained: and it is perhaps the first set of tables titled with those words. The sines, tangents and secants of the arcs to 45 degrees, with those of their complements, are each placed in adjacent columns, in a very commodious manner, continued forwards and downwards to 45 degrees, and then returning backwards and upwards to 90 degrees: the radius is 10000000, and a specimen of the first page of the table is as follows:

0	Sinus		Tangens		Secans		
0	0	10000000	0	infinitum.	10000000	infinitum.	60
1	2909	9999999	2909	34377466738	10000000	34377468193	59
2	5818	9999998	5818	17188731915	10000002	17188734924	58
3	8727	9999996	8727	11459152994	10000004	11459157357	57
4	11636	9999993	11636	8594363048	10000007	8594368866	56
5	14544	9999989	14544	6875488693	10000011	6875495966	55
&c.							&c.
							89

Of this work, the first book treats of the magnitude and relations of such lines as are considered in and about the circle, as the chords, sines, tangents, and secants. In the second book is delivered the construction of the trigonometrical canon, by means of the properties laid down in the first book. After which follows the canon itself. And in the third and fourth books is shown the application of the table, in the resolution of plane and spherical triangles——Lansberg, who was born in Zealand 1561, was many years a minister of the gospel, and died at Middleburg in 1632.

The trigonometry of Bartholomew Pitiscus was first published at Francfort in the year 1599. This is a very complete work; containing, besides the triangular canon, with its construction and use in resolving triangles, the application of trigonometry to problems of surveying, altimetry, architecture, geography, dialling, and astronomy. The construction of the canon is very clearly described: And, in the third edition of the book, in the year 1612, he boasts to have added in this part arithmetical rules for finding the chords of the 3d, 5th, and other uneven parts of an arc, from the chord of that arc being given; saying, that it had been heretofore thought impossible to give such rules: But, after all, those boasted methods are only the application of

the double rule of False-Position to the then known rules for finding the chords of multiple arcs; namely, making the supposition of some number for the required chord of a submultiple of any given arc, then, from this assumed number, computing what will be the chord of its multiple arc, which is to be compared with that of the given arc; then the same operation is performed with another supposition, and so on, as in the double rule of position. The canon contains the sine, tangent, and secant, for every minute of the quadrant, in some parts to 7 places of figures, in others to 8; as also the differences for every 10 seconds. The sines, tangents, and secants, are also given for every 10 seconds in the first and last degree of the quadrant, for every 2 seconds in the first and last 10 minutes, and for every single second in the first and last minute. In this table the sines, tangents, and secants are continued downwards on the left-hand pages as far as to 45 degrees, and then returned upwards on the right-hand pages, so that the complements are always on the same line in the opposite or facing pages.

The mathematical works of Christopher Clavius (a German jesuit, who was born at Bamberg in 1537) in five large folio volumes, were printed at Moguntia, or Mentz, in 1612, the year in which the author died, at the age of 75. In the first volume we find a very ample and circumstantial treatise on trigonometry, with Regiomontanus's canon of sines, for every minute, as also canons of tangents and secants, each in a separate table, to the radius 10000000, and in a form continued forwards all the way up to 90 degrees. The explanation of the construction of the tables is very complete, and is chiefly extracted from Ptolemy, Purbach, and Regiomontanus. The sines have the differences set down for each second, that is, the quotients arising from the differences of the sines divided by 60.

About the year 1600, Ludolph van Collen, or à Ceulen, a respectable Dutch mathematician, wrote his book *De Circulo et Adscriptis*, in which he treats fully and ably of the properties of lines drawn in and about the circle, and especially of chords or subtenses, with the construction of the canon of sines. The geometrical properties from which these lines are computed, are the same as those used by former writers; but his mode of computing and expressing them is different from theirs; for they actually extracted all the roots, &c, at every step, or single operation, in decimal numbers; but he retained the radical expressions to the last, making them however always as simple as possible: thus, for instance, he determines the sides of the polygons of 4, 8, 16, 32, &c, sides, inscribed in the circle whose radius is 1, to be as in the table here annexed: where the point before any figure (as $\surd.2$) signifies the root of all that follows it; so the last line is in our notation the same as $\sqrt{2-\sqrt{2+\sqrt{2-\sqrt{2}}}}$. And as the perfect management of such surds was then not generally

No. of sides	Length of each side.
4	$\surd 2$
8	$\surd.2-\surd 2$
16	$\surd.2-\surd.2+\surd 2$
32	$\surd.2-\surd.2+\surd.2-\surd 2$
&c.	&c.

known, he added a very neat tract on that subject, to facilitate the computations. These, together with other dissertations on similar geometrical matters, were translated from the Dutch language, into Latin, by Willebrord Snell, and published at (Lugd. Batav.) Leyden in 1619. It was in this work that Ludolph determined the ratio of the diameter to the circumference of the circle, to 36 figures, showing that, if the diameter be 1, the circumference will be

greater than 3.14159 26535 89793 23846 26433 83279 50288,
but less than 3.14159 26535 89793 23846 26433 83279 50289;

which ratio was, by his order, in imitation of Archimedes, engraven on his tomb-stone, as is witnessed by the said Snell, pa. 54, 55, *Cyclometricus*, published at Leyden two years after, in which he treats the same subject in a similar manner, recomputing and verifying Ludolph's numbers. And in the same book, he also gives a variety of geometrical approximations, or mechanical solutions, to determine very nearly the lengths of arcs, and the areas of sectors and segments of circles.

Besides the *Cyclometricus*, and another geometrical work (*Apollonius Battavus*) published in 1608, the same Snellius wrote also four others, *doctrinæ triangulorum canonicæ*, in which is contained the canon of secants, and in which the construction of sines, tangents, and secants, together with the dimension or calculation of triangles, both plane and spherical, are briefly and clearly treated. After the author's death, this work was published in 8vo, at Leyden 1627, by Martinus Hortensius, who added to it a tract on surveying and spherical problems. Willebrord Snell was born in 1591 at Royen, and died in 1626, being only 35 years of age. He was professor of mathematics in the university of Leyden, as was also his father Rodolph Snell.

In 1627, Francis van Schooten published, at Amsterdam, in a small neat form, tables of sines, tangents, and secants, for every minute of the quadrant, to 7 places of figures, the radius being 10000000; together with their use in plane trigonometry. These tables have a great character for their accuracy, being declared by the author to be without one single error. This however must not be understood of the last figure of the numbers, which I find are very often erroneous, sometimes in excess and sometimes in defect, by not being always set down to the nearest unit. Schooten died in 1659, while he had the second volume of his second edition of Descartes' geometry in the press. He was also author of several other valuable works in geometry and other branches of the mathematics.

The foregoing are the principal writers on the tables of sines, tangents, and secants, before the invention of logarithms, which happened about this time, namely, soon after the year 1600. Tables of the natural numbers were now all completed, and the methods of computing them nearly perfected: And therefore, before entering on the discovery and construction of logarithms, we shall stop here a little, to give a summary of the manner in which the said natural sines, tangents, and secants, were actually computed, after having been gradually improved from Hipparchus, Menelaus, and Ptolemy, who used

only the chords, down to the beginning of the 17th century, when sines, tangents, secants, and versed sines were in use, and when the method hitherto employed had received its utmost improvement. In this explanation, I shall here first enumerate the theorems by which the calculations were made, and then describe the application of them to the computation itself.

Theorem 1. The square of the diameter of a circle, is equal to the sum of the squares of the chord of an arc, and of the chord of its supplement to a semicircle.

2. The rectangle under the two diagonals of any quadrilateral inscribed in a circle, is equal to the sum of the two rectangles under the opposite sides.

3. The sum of the squares of the sine and cosine (hitherto called the sine of the complement), is equal to the square of the radius.

4. The difference between the sines of two arcs that are equally distant from 60 degrees, or $\frac{1}{6}$ of the whole circumference, the one as much greater as the other is less, is equal to the sine of half the differences of those arcs, or of the difference between either arc and the said arc of 60 degrees.

5. The sum of the cosine and versed sine, is equal to the radius.

6. The sum of the squares of the sine and versed sine, is equal to the square of the chord, or to the square of double the sine of half the arc.

7. The sine is a mean proportional between half the radius and the versed sine of double the arc.

8. A mean proportional between the versed sine and half the radius, is equal to the sine of half the arc.

9. As radius is to the sine, so is twice the cosine to the sine of twice the arc.

10. As the chord of an arc, is to the sum of the chords of the single and double arc, so is the difference of those chords, to the chord of thrice the arc.

11. As the chord of an arc, is to the sum of the chords of twice and thrice the arc, so is the difference of those chords, to the chord of five times the arc.

12. And in general, as the chord of an arc, is to the sum of the chords of n times and $n+1$ times the arc, so is the difference of those chords, to the chord of $2n+1$ times the arc.

13. The sine of the sum of two arcs, is equal to the sum of the products of the sine of each multiplied by the cosine of the other, and divided by the radius.

14. The sine of the difference of two arcs, is equal to the difference of the said two products divided by radius.

15. The cosine of the sum of two arcs, is equal to the difference between the products of their sines and of their cosines, divided by radius.

16. The cosine of the difference of two arcs, is equal to the sum of the said products divided by radius.

17. A small arc is equal to its chord or sine, nearly.

18. As cosine is to sine, so is radius to tangent.

19. Radius is a mean proportional between the tangent and cotangent.

20. Half the difference between the tangent and cotangent of an arc, is equal to the tangent of the difference between the arc and its complement. Or, the sum arising from the addition of double the tangent of an arc with the tangent of half its complement, is equal to the tangent of the sum of that arc and the said half complement.

21. The square of the secant of an arc, is equal to the sum of the squares of the radius and tangent.

22. Radius is a mean proportional between the secant and cosine. Or, as cosine is to radius, so is radius to secant.

23. Radius is a mean proportional between the sine and cosecant.

24. The secant of an arc, is equal to the sum of its tangent and the tangent of half its complement. Or, the secant of the difference between an arc and its complement, is equal to the tangent of the said difference added to the tangent of the less arc.

25. The secant of an arc, is equal to the difference between the tangent of that arc and the tangent of the arc added to half its complement. Or the secant of the difference between an arc and its complement, is equal to the difference between the tangent of the said difference and the tangent of the greater arc.

From some of these 25 theorems, extracted from the writers before mentioned, and a few propositions of Euclid's elements, they compiled the whole table of sines, tangents, and secants, nearly in the following manner. By the elements were computed the sides of a few of the regular figures inscribed in a circle, which were the chords of such parts of the whole circumference as are expressed by the number of sides, and therefore the halves of those chords the sines of the halves of the arcs. So, if the radius be 10000000, the sides of the following figures will give the annexed chords and sines.

The figure	Arc subtended	Its chord, or side	Half arc	Its sine, or $\frac{1}{2}$ chord
Triangle	120°	17320508	60°	8660254
Square	90	14142136	45	7071068
Pentagon	72	11755705	36	5877853
Hexagon	60	10000000	30	5000000
Decagon	36	6180340	18	3090170
Quindecagon	24	4158234	12	2079117

Of some, or all of these, the sines of the halves were continually taken by theorem the 6th, 7th, or 8th, and of their complements by the 3d; then the sines of the halves of these, and of their complements, by the same theorems; and so on, alternately of the halves and complements, till they arrived at an arc which is nearly equal to its sine. Thus, beginning with the above arc of 12 degrees, and its sine, the halves were obtained as follows:

The halves		Their Sines
6°	′	1045285
3		523360
1	30	261769
	45	130696
The comp. of these		
84		9945218
87		9986295
88	30	9996573
89	15	9999143
The halves of these		
42		6691306
21		3583679
10	30	1822355
5	15	915016
43	30	6883545
21	45	3705574
44	15	6977905

The Comp. of these		Sines
48°	′	7431448
69		9335804
79	30	9832549
84	45	9958049
46	30	7253744
68	15	9288095
45	45	7163019
The halves of these		
24		4067366
34	30	5664062
17	15	2965416
39	45	6394390
23	15	3947439
The comp.		
66		9135455
55	30	8241262
72	45	9550199
56	15	7688418
66	45	9187912

The halves		Sines
33°	′	5446390
16	30	2840153
8	15	1434926
27	45	4656145
Comps.		
57		8386706
73	30	9588197
81	45	9896514
62	15	8849876
Halves		
28	30	4771588
14	15	2461533
36	45	5983246
Comps.		
61	30	8788171
75	45	9692309
53	15	8012538
Half		
30	45	5112931
Comp.		
59	15	8594064

The sines of small arcs are then deduced in this manner: From the sine of 45′, above determined, are found the halves, which will be thus:

45′	0″	. . . . .	130896
22	30	. . . . .	65449,4
11	15	. . . . .	32724,8

Now these last two sines being evidently in the same ratio as their arcs, the sines of all the less single minutes will be found by single proportion. So the 45th part of the sine of 45′, gives 2909 for the sine of 1′; which may be doubled, tripled, &c, for the sines of 2′, 3′, &c, up to 45′.

Then, from all the foregoing primary sines, by the theorems for halving, doubling, or tripling, and by those for the sums and differences, the rest of the sines are deduced, to complete the quadrant.

But having thus determined the sines and cosines of the first 30° of the quadrant, that is, the sines of the first and last 30°, those of the intermediate 30° are, by theor. 4, found by one single subtraction for each sine.

The sines of the whole quadrant being thus completed, the tangents are found by theor. 18, 19, 20, namely, for one half of the quadrant by the 18th and 19th, and the other half by one single addition or subtraction for each, by the 20th theorem.

And lastly by theor. 24 and 25, the secants are deduced from the tangents, by addition and subtraction only.

Among the various means used for constructing the canon of sines, tangents, and secants, the writers above enumerated seem not to have

been possessed of the method of differences, so profitably used since, and first of all I believe by Briggs, in computing his trigonometrical canon and his logarithms, as we shall see hereafter, when we come to describe those works. They took however the successive differences of the numbers after they were computed, to verify or prove the truth of them; and if found erroneous, by any irregularity in the last differences, from thence they had a method of correcting the original numbers themselves. At least, this method is used by Pitiscus, *Trig.* lib. 2, where the differences are extended to the third order.——In page 44 of the same book also is described, for the first time that I know of, the common notation of decimal fractions, as now used. And this same notation was afterwards described and used by baron Napier, in *positio* 4 and 5 of his posthumous works, on the construction of logarithms, published by his son in the year 1619. But the decimal fractions themselves may be considered as having been introduced by Regiomontanus, by his decimal division of the radius &c, of the circle; and from that time gradually brought into use: but continued long to be denoted after the manner of vulgar fractions, by a line drawn between the numerator and denominator, which last however was soon omitted, and only the numerator set down, with the line below it; thus it was first $31\frac{35}{100}$, then $31\underline{^{35}}$; afterwards, omitting the line, it became 31^{35}, and lastly $31_{,3,5}$, or 31.35, or ·31·35: as may be traced in the works of Vieta, and others since his time, gradually into the present century.

Having often heard it remarked, that the word *sine*, or in Latin and French *sinus*, is of doubtful origin; and as the various accounts which I have seen of its derivation are very different from one another, it may not be amiss here to employ a few lines on this matter. Some authors say, this is an Arabic word, others that it is the single Latin word *sinus;* and in Montucla's *Histoire des Mathematiques* it is conjectured to be an abbreviation of two Latin words*. The conjecture is thus expressed by the ingenious and learned author of that excellent history, at pa. xxxiii, among the additions and corrections of the first volume: " A l'occasion des sinus dont on parle dans cette page, comme d'une invention des Arabes, voici un étymologie de ce nom, tout-à-fait heureuse et vraisemblable. Je la dois à M. Godin, de l'Académie Royale des Sciences, Directeur de l'Ecole de Marine de Cadix. Les sinus sont, comme l'on sçait, des moitiés de cordes; et les cordes en Latin se nomment *inscriptæ.* Les sinus sont donc *semisses inscriptarum,* ce que probablement on écrivit ainsi pour abréger, S. Ins. Delà ensuite s'est fait par abus le mot de sinus.'' Now, ingenious as this conjecture is, there appears to be little or no probability for the truth of it. For, in the first place, it is not in the least supported by quotations from any of the more early books, to show that it ever was the practice to write or print the words thus, *S. Ins.* on which the conjecture is founded. Again, it is said the chords are called in Latin *inscriptæ ;* and it is true that they sometimes are so: but I think they are more frequently called *subtensæ*, and the sines *semisses subtensarum*

* That is, in the first edition of his book. But he has omitted this improbable conjecture in the new edition of 1799.

of the double arcs, which will not abbreviate into the word *sinus*. But it may be said, what reason have we to suppose that this word is either a Latin word, or the abbreviation of any Latin words whatever? and that it seems but proper to seek for the etymology of *words* in the language of the inventors of the *things*. For which reason it is, that we find the two other words, *tangens* and *secans*, are Latin, as they were invented and used by authors who wrote in that language. But the sines are acknowledged to have been invented and introduced by the Arabians, and thence by analogy it would seem probable that this is a word of *their* language, and from them adopted, together with the use of it, by the Europeans. And indeed Lansberg, in the second page of his trigonometry above mentioned, expressly says that it *is* Arabic: His words are, *Vox sinus Arabica est, et proinde barbara; sed cùm longo usu approbata sit, et commodior non suppetat, nequaquam repudianda est: faciles enim in verbis nos esse oportet, cum de rebus convenit.* And Vieta says something to the same purport, in page 9 of his *Universalium Inspectionum ad Canonem Mathematicum Liber:* His words are, *Breve sinus vocabulum, cùm sit artis, Saracenis præsertim quàm familiare, non est ab artificibus explodendum, ad laterum semissium inscriptorum denotationem, &c.*

Guarinus also is of the same opinion: in his *Euclides Adauctus, &c, tract.* xx. *pa.* 307, he says, SINUS *verò est nomen Arabicum usurpatum in hanc significationem à mathematicis;* though he was aware that a Latin origin was ascribed to it by Vitalis, for he immediately adds, *Licèt Vitalis in suo Lexico Mathemàtico ex eo velit sinum appellatum, quòd claudat curvitatem arcûs.*

Long before I either saw or heard of any conjecture, or observation concerning the etymology of the word *sinus*, I remember that I *imagined* it to be taken from the same Latin word, signifying breast or bosom, and that our sine was so called allegorically. I had observed, that several of the terms in trigonometry were derived from a bow to shoot with, and its appendages; as *arcus*, the bow, *chorda*, the string, and *sagitta*, the arrow, by which name the versed sine, which represents it, was sometimes called; also, that the *tangens* was so called from its office, being a line *touching* the circle, and *secans* from its *cutting* the same: I therefore imagined that the *sinus* was so called, either from its resemblance to the breast or bosom, or from its being a line drawn within the bosom *(sinus)* of the arc, or from its being that part of the string *(chorda)* of a bow *(arcus)* which is drawn near the breast *(sinus)* in the act of shooting. And perhaps Vitalis's definition, above quoted, has some allusion to the same similitude.

Also Vieta seems to allude to the same thing, in calling *sinus* an allegorical word, in page 417 of his works, as published by Schooten, where, with his usual judgement and precision, he treats of the propriety of the terms used in trigonometry for certain lines drawn in and about the circle; of which, as it very well deserves, I shall here extract the principal part, to show the opinion and arguments of so great a man on those names. "Arabes autem semisses inscriptas duplo, numeris præsertim æstimatas, vocaverunt allegoricè SINUS, atque ideo ipsam semi-diametrum, quæ maxima est semissium inscriptarum, SINUM TOTUM. Et de iis suâ methodo canones exiverunt qui circum-

feruntur, supputante præsertim Regiomontano benè justè et accuratè, in iis etiam particulis qualium semidiameter adsumitur 10,000,000.

"Ex canonibus deinde sinuum derivaverunt recentiores canonem semissium circumscriptarum, quem dixêre *Fœcundum;* et canonem eductarum è centro, quem dixêre *Fœcundissimum* et *Beneficum*, hypotenusis addictum. Atque adeò semisses circumscriptas, numeris præsertim æstimatas, vocaverunt *Fœcundos*, Sinus numerósve videlicet; quanquam nihil vetat *Fœcundi* nomen substantivè accipi. Hypotenusas autem Beneficas, vel etiam simpliciter Hypotenusas: quoniam hypotenusa in primâ serie sinûs totius nomen retinet. Itaque ne novitate verborum res adumbretur, et alioqui sua artificibus, eo nomine debita, præripiatur gloria, præposita in Canone Mathematico canonicis numeris inscriptio, candidè admonet primam seriem esse Canonem Sinuum. In secundâ verò, partem canonis fœcundi, partem canonis fœcundissimi, contineri. In tertiâ, reliquam.

"Sanè præter inscriptas et circumscriptas, circulum etiam adficiunt aliæ lineæ rectæ, velut Incidentes, Tangentes, et Secantes. Verùm illæ voces substantivæ sunt, non peripheriarum relativæ. Ac secare quidem circulum linea recta tunc intelligitur, cùm in duobus punctis secat. Itaque non loquuntur benè geometricè, qui eductas è centro ad metas circumscriptarum vocant secantes impropriè, cum secantes et tangentes ad certos angulos vel peripherias referunt. Immò verò artem confundunt, cùm his vocibus necesse habeat uti geometra abs relatione.

"Quare si quibus arrideat Arabum metaphora; quæ quidem aut omninò retinenda videtur, aut omninò explodenda; ut semisses inscriptas, Arabes vocant sinus; sic semisses circumscriptæ, vocentur Prosinus Amsinusve; et eductæ è centro Transsinuosæ. Sin allegoria displiceat, geometrica sane inscriptarum et circumscriptarum nomina retineantur. Et cùm eductæ è centro ad metas circumscriptarum, non habeant hactenus nomen certum neque elegans, vocentur sanè prosemidiametri, quasi protensæ semidiametri, se habentes ad suas circumscriptas, sicut semidiametri ad inscriptas."

Against the Arabic origin however of this word *(sinus)* may be urged its being varied according to the fourth declension of Latin nouns like *manus;* and that if it were an Arabic word latinised, it would have been ranked under either the first, second, or third declension, as is usual in such adopted words.

So that, upon the whole, it will perhaps rather seem probable, that the term *sinus* is the Latin word answering to the name by which the Saracens called that line, and not their word itself. And this conjecture seems to be rendered still more probable by some expressions in pa. 4 and 5 of Otho's Preface to Rheticus's Canon, where it is not only said, that the Saracens called the half-chord of double the arc *sinus*, but also that they called the part of the radius lying between the sine and the arc *sinus versus, vel sagitta*, which are evidently Latin words, and seem to be intended for the Latin translations of the names by which the Arabians called these lines, or the numbers expressing the lengths of them.

And this conjecture has been confirmed and realised, by a reference to Golius's Lexicon of the Arabic and Latin languages. In consequence I find that the Arabic and Latin writers on trigonometry do both of them use those words in the same allegorical sense, the latter being

the Latin translations of the former, and not the Arabic words corrupted. Thus the true Arabic word to denote the trigonometrical sine, is جيب, pronounced *Jeib* (reading the vowels in the French manner), meaning *sinus indusii, vestisque*, the bosom part of the garment: the versed sine is سهم, *Schim*, which is *sagitta*, the arrow; the arc is قوس, which is *arcus*, the arc; and the chord is وتر, *Vitr*, that is, *chorda*, the chord.

OF LOGARITHMS.

THE trigonometrical canon of natural sines, tangents and secants, being now brought to a considerable degree of perfection, the great length and accuracy of the numbers, together with the increasing delicacy and number of astronomical problems and spherical triangles, to the solution of which the canon was applied, urged many persons, conversant in those matters, to endeavour to discover some means of diminishing the great labour and time, requisite for so many multiplications and divisions, in such large numbers as the tables then consisted of. And their chief aim was, to reduce the multiplications and divisions to additions and subtractions, as much as possible.

For this purpose, Nicholas Raymer Ursus Dithmarsus invented an ingenious method, which serves for one case in the sines, namely, when radius is the first term in the proportion, and the sines of two arcs are the second and third terms; for he showed, that the fourth term, or sine, would be found by only taking half the sum or difference of the sines of two other arcs, which should be the sum and difference of the less of the two former given arcs, and the complement of the greater. This is no more, in effect, than the following well-known theorem in trigonometry: as half radius is to the sine of one arc, so is the sine of another arc, to the cosine of the difference *minus* the cosine of the sum of the said arcs. The author published this ingenious device in 1588, in his *Fundamentum Astronomiæ*. And three or four years afterwards it was greatly improved by Clavius, who adapted it to all proportions in the resolution of the spherical triangles, for all sines, tangents, secants, versed sines, &c; and that whether radius be in the proportion or not. All which he explains very fully in *lem.* 53, *lib.* 1, of his treatise on the *Astrolabe*. See more on this subject in Longomont. Astron. Danica, pa. 7, et seq. This method, though ingenious, depends not on any abstract property of numbers, but only on the relations of certain lines, drawn in and about the circle; and it was therefore rather limited, and sometimes attended with trouble in the application.

After perhaps various other contrivances, incessant endeavours at length produced the happy invention of logarithms, which are of direct and universal application to all numbers abstractedly considered, being derived from a property inherent in numbers themselves. This property may be considered, either as the relation between a geometrical series of terms and a corresponding arithmetical one, or as the relation

between ratios and the measures of ratios, which comes to much the same thing, having been conceived in one of these ways by some of the writers on this subject, and in the other by the rest of them, as well as in both ways at different times by the same writer. A succinct idea of this property, and of the probable reflections made on it by the first writers on logarithms, may be to the following effect:

The learned calculators, about the close of the 16th, and beginning of the 17th century, finding the operations of multiplication and division by very long numbers, of seven or eight places of figures, which they had frequently occasion to perform, in resolving problems relating to geography and astronomy, to be exceedingly troublesome, set themselves to consider whether it was not possible to find some method of lessening this labour, by substituting other easier operations in their stead. In pursuit of this object, they reflected, that, since, in every multiplication by a whole number, the ratio, or proportion, of the product to the multiplicand, is the same as the ratio of the multiplier to unity, it will follow that the ratio of the product to unity (which, according to Euclid's definition of compound ratios, is compounded of the ratios of the said product to the multiplicand and of the multiplicand to unity), must be equal to the sum of the two ratios of the multiplier to unity and of the multiplicand to unity. Consequently, if they could find a set of artificial numbers that should be the representatives of, or should be proportional to, the ratios of all sorts of numbers to unity, the addition of the two artificial numbers that should represent the ratios of any multiplier and multiplicand to unity, would answer to the multiplication of the said multiplicand by the said multiplier, or the sum arising from the addition of the said representative numbers would be the representative number of the ratio of the product to unity; and consequently, the natural number to which it should be found, in the table of the said artificial or representative numbers, that the said sum belonged, would be the product of the said multiplicand and multiplier. Having settled this principle, as the foundation of their wished-for method of abridging the labour of calculations, they resolved to compose a table of such artificial numbers, or numbers that should be representatives of, or proportional to, the ratios of all the common or natural numbers to unity.

The first observation that naturally occurred to them in the pursuit of this scheme, was, that whatever artificial numbers should be chosen to represent the ratios of other whole numbers to unity, the ratio of equality, or of unity to unity, must be represented by 0; because *that* ratio has properly no magnitude, since, when it is added to, or subtracted from, any other ratio, it neither increases nor diminishes it.

The second observation that occurred to them was, that any number whatever might be chosen at pleasure for the representative of the ratio of any given natural number to unity; but that, when once such choice was made, all the other representative numbers would be thereby determined, because they must be greater or less than that first representative number, in the same proportions in which the ratios represented by them, or the ratios of the corresponding natural numbers to unity, were greater or less than the ratio of the said given natural number to unity. Thus, either 1, or 2, or 3, &c, might be chosen for the representative of the ratio of 10 to 1. But, if 1 be chosen for it,

the representative of the ratio of 100 to 1 and 1000 to 1, which are double and triple of the ratio of 10 to 1, must be 2 and 3, and cannot be any other numbers: and if 2 be chosen for it, then the representatives of the ratios of 100 to 1 and 1000 to 1, will be 4 and 6, and cannot be any other numbers; and if 3 be chosen for it, then the representatives of the ratios of 100 to 1 and 1000 to 1, will be 6 and 9, and cannot be any other numbers; and so on.

The third observation that occurred to them was, that, as these artificial numbers were representatives of, or proportional to, ratios of the natural numbers to unity, they must be expressions of the numbers of some smaller equal ratios that are contained in the said ratios. Thus, if 1 be taken for the representative of the ratio of 10 to 1, then 3, which is the representative of the ratio of 1000 to 1, will express the number of ratios of 10 to 1 that are contained in the ratio of 1000 to 1. And if, instead of 1, we make 10,000,000, or ten millions, the representative of the ratio of 10 to 1 (in which case 1 will be the representative of a very small ratio, or *ratiuncula*, which is only the ten-millionth part of the ratio of 10 to 1, or will be the representative of the 10,000,000th root of 10, or of the first or smallest of 9,999,999 mean proportionals interposed between 1 and 10), the representative of the ratio of 1000 to 1, which will in this case be 30,000,000, will express the number of those *ratiunculæ*, or small ratios of the 10,000,000th root of 10 to 1, which are contained in the said ratio of 1000 to 1. And the like may be shown of the representative of the ratio of any other number to unity. And therefore they thought these artificial numbers, which thus represent, or are proportional to, the magnitudes of the ratios of the natural numbers to unity, might not improperly be called the LOGARITHMS of those ratios, since they express the numbers of smaller ratios of which they are composed. And then, for the sake of brevity, they called them the *Logarithms of the said natural numbers themselves*, which are the antecedents of the said ratios to unity, of which they are in truth the representatives.

The foregoing method of considering this property leads to much the same conclusions as the other way, in which the relations between a geometrical series of terms, and their exponents, or the terms of an arithmetical series, are contemplated. In this latter way, it readily occurred that the addition of the terms of the arithmetical series corresponded to the multiplication of the terms of the geometrical series; and that the arithmeticals would therefore form a set of artificial numbers, which, when arranged in tables, with their geometricals, would answer the purposes desired, as has been explained above.

From this property, by assuming four quantities, two of them as two terms in a geometrical series, and the others as the two corresponding terms of the arithmeticals, or artificials, or logarithms, it is evident that all the other terms of both the two series may thence be generated. And therefore there may be as many sets or scales of logarithms as we please, since they depend entirely on the arbitrary assumption of the first two arithmeticals. And all possible natural numbers may be supposed to coincide with some of the terms of any geometrical progression whatever, the logarithms or arithmeticals determining which of the terms in that progression they are.

It was proper however that the arithmetical series should be so as-

sumed, as that the term 0 in it might answer to the term 1 in the geometricals; otherwise the sum of the logarithms of any two numbers would be always to be diminished by the logarithm of 1, to give the logarithm of the product of those numbers: for which reason, making 0 the logarithm of 1, and assuming any quantity whatever for the value of the logarithm of any one number, the logarithms of all other numbers were thence to be derived. And hence, like as the multiplication of two numbers is effected by barely adding their logarithms, so division is performed by subtracting the logarithm of the one from that of the other, raising of powers by multiplying the logarithm of the given number by the index of the power, and extraction of roots by dividing the logarithm by the index of the root. It is also evident, that in all scales or systems of logarithms, the logarithm of 0 will be infinite; namely, infinitely negative if the logarithms increase with the natural numbers, but infinitely positive if the contrary; because that while the geometrical series must decrease through infinite divisions by the ratio of the progression, before the quotient come to 0 or nothing; the logarithms, or arithmeticals, will in like manner undergo the corresponding infinite subtractions or additions of the common equal difference; which equal increase or decrease, thus indefinitely continued, must needs tend to an infinite result.

This however was no newly-discovered property of numbers, but what was always well known to all mathematicians, being treated of in the writings of Euclid, as also by Archimedes, who made great use of it in his *Arenarius*, or treatise on the number of the sands, namely, in assigning the rank or place of those terms, of a geometrical series produced from the multiplication together of any of the foregoing terms, by the addition of the corresponding terms of the arithmetical series, which served as the indices or exponents of the former. Stifelius also treats very fully of this property at folio 35 et seq. and there explains all its principal uses, as relating to the logarithms of numbers, only without the name; such as, that addition answers to multiplication, subtraction to division, multiplication of exponents to involution, and dividing of exponents to evolution; all which he exemplifies in the rule-of-three, and in finding several mean proportionals, &c, exactly as is done in logarithms. So that he seems to have been in the full possession of the idea of logarithms, but without the necessity of making a table of such numbers. For, the reason why tables of these numbers were not sooner composed, was, that the accuracy and trouble of trigonometrical computations had not sooner rendered them necessary. It is therefore not to be doubted, that about the close of the sixteenth and beginning of the seventeenth century, many persons had thoughts of such a table of numbers, besides the few who are said to have attempted it.

It has been said by some, that Longomontanus invented logarithms: but this cannot well be supposed to have been any more than in idea, since he never published any thing of the kind, nor ever laid claim to the invention, though he lived thirty-three years after they were first

published by baron Napier, as he died only in 1647, when they had been long known and received all over Europe. Nay more, Longomontanus himself ascribes the invention to Napier: vid. Astron. Danica, p. 7, &c. Some circumstances of this matter are indeed related by Wood in his *Athenæ Oxonienses*, under the article Briggs, on the authority of Oughtred and Wingate, viz. "That one Dr. Craig, a Scotchman, coming out of Denmark into his own country, called upon Joh. Neper baron of Marcheston near Edenburg, and told him, among other discourses, of a new invention in Denmark (by Longomontanus as 'tis said) to save the tedious multiplication and division in astronomical calculations. Neper being solicitous to know farther of him concerning this matter, he could give no other account of it, than that it was by proportional numbers. Which hint Neper taking, he desired him at his return to call upon him again. Craig, after some weeks had passed, did so, and Neper then showed him a rude draught of that he called *Canon mirabilis Logarithmorum*. Which draught, with some alterations, he printing in 1614, it came forthwith into the hands of our author Briggs, and into those of Will. Oughtred, from whom the relation of this matter came."

Kepler also says, that one Juste Byrge, assistant astronomer to the landgrave of Hesse, invented or projected logarithms long before Neper did; but that they had never come abroad, on account of the great reservedness of their author with regard to his own compositions. It is also said that Byrge computed a table of natural sines for every two seconds of the quadrant.

But whatever may have been said, or conjectured, concerning any thing that may have been done by others, it is certain that the world is indebted, for the first publication of logarithms, to John Napier, or Nepair *, or in Latin, Neper, baron of Merchiston, or Markinston,

* The origin of which name, Crawfurd informs us, was from a (less) *peerless* action of one of his ancestors, viz. Donald, second son of the earl of Lenox, in the time of David the Second. "Some English writers, mistaking the import of the term *baron*, have called this celebrated person lord Napier, a Scotch nobleman. He was not indeed a peer of Scotland; but the peerage of Scotland informs us, that he was of a very ancient, honourable, and distinguished family, that his ancestors, for many generations, had been possessed of sundry baronies, and, amongst others, of the barony of Merchistoun, which descended to him by the death of his father in 1608. Mr Briggs, therefore, very properly styles him *Baro Merchistonii*. Now, according to Skene, *de verborum significatione*, 'In this realm (of Scotland) he is called a Barronne, quha haldis his landes immediatelie in chief of the king, and hes power of Pit and Gallows, *Fossa et Furca*, quhilk was first institute and granted be king Malcolme, quha gave power to the Barronnes to have ane Pit, quhairin women condemned for thift suld be drowned, and ane Gallows, whereupon men thieves and trespassoures suld be hanged, conforme to the doome given in the Barron Court thereanent.' So that a Scotch baron, though no peer, was nevertheless a very considerable personage, both in dignity and power." *Reid's Essay on Logarithms.* The name of the illustrious inventor of logarithms, and his family, has been variously written at different times, and on different occasions. In his own Latin works, and in perhaps all other books in Latin, it is *Neper*, or *Neperus Baro Merchistonii*; By Briggs, in a letter to Archbishop Usher, he is called *Neper lord of Markinston*. In Wright's translation of the Logarithms, which was revised by the author himself, and published in 1616, he is called *Nepair, baron of Merchiston*; and the same by Crawfurd and some others. But M'Kenzie and others write it *Napier, baron of Merchiston*; which being also the orthography now used by the family, I shall adopt in this work. I observe also, that the Scotch Compendium of Honour says he was only

in Scotland, who died the 3d of April 1618, at 67 years of age. Baron Napier added considerable improvements to trigonometry, and the frequent numeral computations he performed in this branch gave occasion to his invention of logarithms, in order to save part of the trouble attending those calculations: and for this reason he adapted his tables peculiarly to trigonometrical uses.

This discovery he published in 1614, in his book intitled *Mirifici Logarithmorum Canonis Descriptio,* reserving the construction of the numbers till the sense of the learned concerning his invention should be known. And, excepting the construction, this is a perfect work on this kind of logarithms, containing in effect the logarithms of all numbers, and the logarithmic sines, tangents, and secants, for every minute of the quadrant, together with the description and uses of the tables, as also his definition and idea of logarithms.

Napier explains his notion of logarithms by lines described or generated by the motion of points, in this manner: He first conceives a line to be generated by the equable motion of a point, which passes over equal portions of it in equal small moments or portions of time: he then considers another line as generated by the unequal motion of a point, in such manner that, in the aforesaid equal moments or portions of time, there may be described or cut off, from a given line, parts which shall be continually in the same proportion with the respective remainders, of that line, which had before been left: then are the several lengths of the first line, the logarithms of the corresponding parts of the latter. Which description of them is similar to this, that the logarithms are a series of quantities or numbers in arithmetical progression, adapted to another series in geometrical progression. The first or whole length of the line, which is diminished in geometrical progression, he makes the radius of a circle, and its logarithm 0 or nothing, representing the beginning of the first or arithmetical line; and the several proportional remainders of the geometrical line, are the natural sines of all the other parts of the quadrant, decreasing down to nothing, while the successive increasing values of the arithmetical line, are the corresponding logarithms of those decreasing sines: so that, while the natural lines decrease from radius to nothing, their logarithms increase from nothing to infinite. Napier made the logarithm of radius to be 0, that he might save the trouble of adding and subtracting it, in trigonometrical proportions, in which it so frequently occurred; and he made the logarithms of the sines, from the entire quadrant down to 0, to increase, that they might be positive, and so in his opinion the easier to manage, the sines being of more frequent use than the tangents and secants, of which the whole of the latter and half the former would, in his way, be of a different affection from the sines; for it is evident that the logarithms of all the secants in the quadrant, and of all the tangents above 45°, or the half quadrant, would be negative, being the logarithms of numbers greater than the radius, whose logarithm is made equal to 0 or nothing.

Sir John Napier, and that his son and heir Archibald, was the first lord, being raised to that dignity in 1626. Be this however as it may, I shall conform to the common modes of expression, and call him indifferently, *Baron Napier*, or *Lord Napier*.

As to the contents of Napier's table; it consists of the natural sines and their logarithms, for every minute of the quadrant. Like most other tables, the arcs are continued to 45 degrees from top to bottom on the left-hand side of the pages, and then returned backwards from bottom to top on the right-hand side of the pages: so that the arcs and their complements, with the sines, natural and logarithmic, stand on the same line of the page, in six columns; and in another column, in the middle of the page, are placed the differences between the logarithmic sines and cosines on the same lines, and in the adjacent columns on the right and left; thus making in all seven columns in each page. Of these columns, the first and seventh contain the arc and its complement, in degrees and minutes; the second and sixth, the natural sine and cosine of each arc; the third and fifth, the logarithmic sine and cosine; and the fourth, or middle column, the difference between the logarithmic sine and cosine which are in the third and fifth columns. To elucidate the description, the first page of the table is here inserted, as follows:

Gr. min.	0 Sinus.	Logarithmi.	+ | − Differentiæ.	Logarithmi.	Sinus.	
0	0	Infinitum.	Infinitum.	0	10000000	60
1	2909	81425681	81425680	1	10000000	59
2	5818	74494213	74494211	2	9999998	58
3	8727	70439564	70439560	4	9999996	57
4	11636	67562746	67562739	7	9999993	56
5	14544	65331315	65331304	11	9999989	55
6	17453	63506099	63508083	16	9999984	54
7	20362	61966596	61966573	22	9999980	53
8	23271	60631284	60631256	28	9999974	52
9	26180	59453453	59453418	35	9999967	51
10	29088	58399857	58399814	43	9999959	50
11	31997	57446759	57446707	52	9999950	49
12	34906	56576646	56576584	62	9999940	48
13	37815	55776222	55776149	73	9999928	47
14	40724	55035148	55035064	84	9999917	46
15	43632	54345225	54345129	96	9999905	45
16	46541	53699843	53699734	109	9999892	44
17	49450	53093600	53093577	123	9999878	43
18	52359	52522019	52521881	138	9999863	42
19	55268	51981356	51981202	154	9999847	41
20	58177	51468431	51468361	170	9999831	40
21	61086	50980537	50980450	187	9999813	39
22	63995	50515342	50515137	205	9999795	38
23	66904	50070627	50070603	224	9999776	37
24	69813	49645239	49644995	244	9999756	36
25	72721	49237030	49236765	265	9999736	35
26	75630	48844826	48844539	287	9999714	34
27	78539	48467431	48467122	309	9999692	33
28	81448	48103763	48103431	332	9999668	32
29	84357	47752859	47752503	336	9999644	31
30	87265	47413852	47412471	381	9999619	30

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Besides the columns which are actually contained in this table, as above exhibited and described, namely, the natural and logarithmic sines and their differences, the same table is made to serve also for the logarithmic tangents and secants of the whole quadrant, and for the logarithms of common numbers. For, the fourth or middle column contains the logarithmic tangents, being equal to the differences between the logarithmic sines and cosines, when the logarithm of radius is 0, because cosine : sine : : radius : tangent, that is, in logarithms, tangent = sine — cosine. Also the logarithmic sines, made negative, become the logarithmic cosecants, and the logarithmic cosines made negative, are the logarithmic secants; because sine : radius : : radius : cosecant, and cosine : radius : : radius : secant; that is, in logarithms, cosecant = 0 — sine = — sine, and secant = 0 — cosine = — cosine. And to make it answer the purpose of a table of logarithms of common numbers, the author directs to proceed thus: A number being given, find that number in any table of natural sines, or tangents, or secants, and note the degrees and minutes in its arc: then in his table find the corresponding logarithmic sine, or tangent, or secant, to the same number of degrees and minutes; and it will be the required logarithm of the given number.

After his definitions and descriptions of logarithms, Napier explains his table, and illustrates the precepts with examples, showing how to take out the logarithms of sines, tangents, secants, and of common numbers; as also how to add and subtract logarithms. He then proceeds to teach the uses of those numbers; and first, in finding any of the terms of three or four proportionals, showing how to multiply and divide, and to find powers and roots, by logarithms: 2dly, in trigonometry, both plane and spherical, but especially the latter, in which he is very explicit, turning all the theorems for every case into logarithms, computing examples to each in numbers, and then enumerating a set of astronomical problems of the sphere which properly belong to each case. Napier here teaches also some new theorems in spherical trigonometry, particularly, that the tangent of half the base : tang. ½ sum legs : : tang. ½ dif. legs : tang. ½ the alternate base; and the general theorem for what are called his five circular parts, by which he condenses into one rule, in two parts, the theorems for all the cases of right-angled spherical triangles, which had been separately demonstrated by Pitiscus, Lansbergius, Copernicus, Regiomontanus, and others.

The description and use of Napier's canon being in the Latin language, they were translated into English by Mr. Edward Wright, an ingenious mathematician, and inventor of the principles of what has commonly, though erroneously, been called Mercator's Sailing. He sent the translation to the author, at Edinburgh, to be revised by him before publication; who having carefully perused it, returned it with his approbation, and a few lines introduced besides into the translation. But, Mr. Wright dying soon after he received it back, it was after his death published, together with the tables, but each

number to one figure less, in the year 1616, by his son, Samuel Wright, accompanied with a dedication to the East India Company, as also a preface by Henry Briggs, of whom we shall presently have occasion to speak more at large, on account of the great share he bore in perfecting the logarithms. In this translation, Mr. Briggs gave also the description and draught of a scale that had been invented by Mr. Wright, and several other methods of his own, for finding the proportional parts to intermediate numbers, the logarithms having been only printed for such numbers as were the natural sines of each minute. And the note which Baron Napier inserted in this English edition, and which was not in the original, was as follows: "But be-" cause the addition and subtraction of these former numbers may seem " somewhat painfull, I intend (if it shall please God) in a second edition, " to set out such logarithms as shall make those numbers above written " to fall upon decimal numbers, such as 100,000,000, 200,000,000 " 300,000,000 &c, which are easie to be added or abated to or from " any other number." This note had reference to the alteration of the scale of logarithms, in such manner, that 1 should become the logarithm of the ratio of 10 to 1, instead of the number 2·3025851, which Napier had made that logarithm in his table, and which alteration had before been recommended to him by Briggs, as we shall see presently. Napier also inserted a similar remark in his *Rabdologia*, which he printed at Edinburgh in 1617.

The following is the preface to Wright's * book, which, as far as

* Of this ingenious man I shall here insert in a note the following memoirs, as they have been translated from a Latin piece taken out of the annals of Gonvile and Caius College at Cambridge, viz. "This year 1615 died at London, Edward Wright of Garveston in Norfolk, formerly a fellow of this college; a man respected by all for the integrity and simplicity of his manners, and also famous for his skill in the mathematical sciences: insomuch that he was deservedly styled a most excellent mathematician by Richard Hackluyt, the author of an original treatise of our English navigations. What knowledge he had acquired in the science of mechanics, and how usefully he employed that knowledge to the public as well as private advantage, abundantly appear both from the writings he published, and from the many mechanical operations still extant, which are standing monuments of his great industry and ingenuity. He was the first undertaker of that difficult but useful work, by which a little river is brought from the town of Ware in a new canal, to supply the city of London with water; but by the tricks of others he was hindered from completing the work he had begun. He was excellent both in contrivance and execution, nor was he inferior to the most ingenious mechanic in the making of instruments, either of brass, or any other matter. To his invention is owing whatever advantage Hondius's geographical charts have above others, for it was our Wright that taught Jodocus Hondius the method of constructing them, which was till then unknown; but the ungrateful Hondius concealed the name of the true author, and arrogated the glory of the invention to himself. Of this fraudulent practice the good man could not help complaining, and justly enough, in the preface to his Treatise of the Correction of Errors in the Art of Navigation, which he composed with excellent judgement, and after long experience, to the great advancement of naval affairs. For the improvement of this art he was appointed mathematical lecturer by the East-India Company, and read lectures in the house of that worthy knight Sir Thomas Smith, for which he had a yearly salary of fifty pounds. This office he discharged with great reputation, and much to the satisfaction of his hearers. He published in English, a book on the doctrine of the sphere, and another concerning the construction of sun-dials. He also prefixed an ingenious preface to the learned Gilbert's book on the load stone. By these and other his writings, he has transmitted his fame to latest posterity. While he was yet a fellow of this college, he could not be concealed in his private study, but was called forth to the public business of the kingdom, by

where it mentions the change from the Latin into English, is a literal translation of the preface to Napier's original; but what follows that, is added by Napier himself. And I willingly insert it here, as it contains a declaration of the motives which led to this discovery, and as the book itself is very scarce. "Seeing there is nothing (right well beloved students in the mathematics) that is so troublesome to Mathematicall practise, nor that doth more molest and hinder Calculators, than the Multiplications, Divisions, square and cubical Extractions of great numbers, which, besides the tedious expence of time, are for the most part subject to many slippery errors: I began therefore to consider in my minde, by what certaine and ready Art I might remove those hindrances. And having thought upon many things to this purpose, I found at length some excellent briefe rules to be treated of (perhaps) hereafter. But amongst all, none more profitable than this, which together with the hard and tedious Multiplications, Divisions, and Extractions of rootes, doth also cast away from the worke it selfe, even the very numbers themselves that are to be multiplied, divided, and resolved into rootes, and putteth other numbers in their place, which performe as much as they can do, onely by Addition and Subtraction, Division by two, or Division by three; which secret invention, being (as all other good things are) so much the better as it shall be the more common; I thought good heretofore to set forth in Latine for the publique use of Mathematicians. But now some of our Countrymen in this Island well affected to these studies, and the more publique good, procured a most learned Mathematician to translate the same into our vulgar English tongue, who after he had finished it sent the Coppy of it to me, to be seene and considered on by myself. I having most willingly and gladly done the same, finde it to be most exact and precisely conformable to my minde and the originall. Therefore it may please you who are inclined to these studies, to receive it from me and the Translator, with as much good will as we recommend it unto you. Fare yee well."

There are also extant copies of Wright's translation with the date 1618 in the title: but this is not properly a new edition, being only the old work with a new title-page adapted to it (the old one being cancelled), together with the addition of sixteen pages of new matter, called

the queen's majesty, about the year 1593. He was ordered to attend the earl of Cumberland in some maritime expeditions. One of these he has given a faithful account of, in the way of a journal or ephemeris, to which he has prefixed an elegant hydrographical chart of his own contrivance. A little before his death, he employed himself about an English translation of the book of logarithms then lately found out by the honourable Baron Napier, a Scotchman, who had a great affection for him. This posthumous work of his was published soon after, by his only son Samuel Wright, who was also a scholar of this college. He had formed many other useful designs, but was hindered by death from bringing them to perfection. Of him it may be truly said, that he studied more to serve the public than himself; and though he was rich in fame, and in the promises of the great, yet he died poor, to the scandal of an ungrateful age."

Other anecdotes of him, as well as many other mathematical authors, may be found in the curious history of navigation by Dr. James Wilson, prefixed to Mr. Robertson's excellent treatise on that subject.

"An Appendix to the Logarithms, showing the practice of the calculation of triangles, and also a new and ready way for the exact finding out of such lines and logarithms as are not precisely to be found in the canons." But we are not told by what author: probably it was by Briggs.

Besides the trouble attending Napier's canon, in finding the proportional parts, when used as a table of the logarithms of common numbers, and which was in part remedied by the fore-mentioned contrivances of Wright and Briggs, it was also accompanied with another inconvenience, which arose from the logarithms being sometimes + or additive, and sometimes − or negative, and which required therefore the knowledge of algebraical addition and subtraction. And this inconvenience was occasioned, partly by making the logarithm of radius to be 0, and the sines to decrease, and partly by the compendious manner in which the author had formed the table; making the three columns of sines, cosines, and tangents, to serve also for the other three of cosecants, secants, and cotangents.

But this latter inconvenience was well remedied by John Speidell, in his *New Logarithms*, first published in 1619, which contained all the six columns, and in this order; sines, cosines, tangents, cotangents, secants, cosecants: and they were besides made all positive, by being taken the arithmetical complements of Napier's, that is, they were the remainders left by subtracting each of these latter from 10000000. And the former inconvenience was more effectually removed by the said Speidell, in an additional table, given in the sixth impression of the former work, in the year 1624. This was a table of Napier's logarithms for the round or integer numbers 1, 2, 3, 4, 5, &c, to 1000, together with the differences and arithmetical complements; as also the halves of the said logarithms, with their differences and arithmetical complements; which halves consequently were the logarithms of the square roots of the said numbers. These logarithms are however a little varied in their form from Napier's, namely, so as to increase *from* 1, whose logarithm is 0, instead of decreasing *to* 1, or radius, whose logarithm Napier made 0 likewise; that is, Speidell's logarithm of any number n, is equal to Napier's logarithm of its reciprocal $\frac{1}{n}$: so that in this last table of Speidell's, the logarithm of 1 being 0, the logarithm of 10 is 2302584, the logarithm of 100 is twice as much, or 4605168, and that of 1000 thrice as much, or 6907753.

This table is now commonly called *hyperbolic* logarithms, because the numbers express the areas between the asymptote and curve of the hyperbola, those areas being limited by ordinates parallel to the other asymptote, and the ordinates decreasing in geometrical progression. But this is not a very proper method of denominating them, as such areas may be made to denote any system of logarithms whatever, as we shall show more at large in the proper place.

In the year 1619, Robert Napier, son of the inventor of logarithms, published a new edition of his late father's *Logarithmorum Canonis Descriptio*, together with the promised *Logarithmorum Canonis Con-*

structio, and other miscellaneous pieces, written by his father and by Mr. Briggs.—Also one Bartholomew Vincent, a bookseller at Lugdunum, or Lyons, in France, printed there an exact copy of the same two works in one volume, in the year 1620; which was four years before the logarithms were carried to France by Wingate, who was therefore erroneously said to have first introduced them into that country. But I shall treat more particularly of the contents of this work, after having enumerated the other writers on this kind of logarithms.

In 1618 or 1619, Benjamin Ursinus, mathematician to the Elector of Brandenburgh, published, at Cologn, his *Cursus Mathematicus*, in which is contained a copy of Napier's logarithms, with the addition of some tables of proportional parts. And in 1624, he printed at the same place, his *Trigonometria*, with a table of natural sines and their logarithms, of the Napierian kind and form, to every ten seconds in the quadrant; which he had been at much pains in computing.

In the same year 1624, logarithms, of nearly the same kind, were also published, at Marpurg, by the celebrated John Kepler, mathematician to the Emperor Ferdinand the Second, under the title of *Chilias Logarithmorum ad Totidem Numeros Rotundos, præmissa Demonstratione legitima Ortus Logarithmorum eorumque Usus, &c*; and the year following, a supplement to the same; being applied to round or integer numbers, and to such natural sines as nearly coincide with them. These are exactly the same kind of logarithms as Napier's, being the same logarithms of the natural sines of arcs, beginning from the quadrant, whose sine or radius is 10,000,000, the logarithm of which is made 0, and from thence the sines decreasing by equal differences, down to 0, or the beginning of the quadrant, while their logarithms increase to infinity. So that the difference between this table and Napier's, consists only in this, namely, that in Napier's table the *arc* of the quadrant is divided into equal parts, differing by one minute each, and consequently their sines, to which the logarithms are adapted, are irrational or interminate numbers, and only expressed by approximate decimals; whereas in Kepler's table, the *radius* is divided into equal parts, which are considered as perfect and terminate sines, having equal differences, and to which terminate sines the logarithms are here adapted. By this means indeed the proportions for intermediate numbers and logarithms are easier made, but then the corresponding arcs are not terminate, but irrational, and only set down to an approximate degree. So that Kepler's table is more convenient as a table of the logarithms of common numbers, and Napier's as the logarithmic sines of the arcs of the quadrant. In both tables, the logarithm of the ratio of 10 to 1, is the same quantity, namely 23025852; and as the radius, or greatest sine, is 10,000,000, whose logarithm is made 0, the logarithms of the decuple parts of it will be found by adding 23025852 continually, or multiplying this logarithm by 2, 3, 4, &c; and hence the logarithm of 1, the first number, or smallest sine, in the table, is 161180959, or 7 times 2302 &c.

Besides the two columns, of the natural sines and their logarithms,

with the differences of the logarithms, this table of Kepler's consists also of three other columns; the first of which contains the nearest arcs, belonging to those sines, expressed in degrees, minutes and seconds; and the other two express what parts of the radius each sine is equal to, namely, the one of them in 24th parts of the radius, and minutes and seconds of them; and the other in 60th parts of the radius, and minutes of them. As a specimen I have here extracted the last page of the table printed exactly as in the work:

Arcus Circuli cum differentiis.	Sinus seu numeri absoluti.	Partes vicesimae quartae.	Logarithmi cum differentiis.	Partes sexagenariae.
19. 34			101.58	
80. 3. 46	98500.00	23. 38. 24	1511.36+	59. 6
20. 12			101.47	
80. 23. 58	98600.00	23. 39. 50	1409.89+	59. 10
20. 53			101.37	
80. 44. 51	98700.00	23. 41. 17	1308.52+	59. 13
21. 42			101.26	
81. 6. 33	98800.00	23. 42. 43	1207.26	59. 17
22. 53			101.17	
81. 29. 26	98900.00	23. 44. 10	1106.09+	59. 20
24. 6			101.06	
81. 53. 32	99000.00	23. 45. 36	1005.03+	59. 24
25. 6			100.96	
82. 18. 38	99100.00	23. 47. 2	904.07+	59. 28
26. 28			100.85	
82. 45. 6	99200.00	23. 48. 29	803.22+	59. 31
27. 54			100.76	
83. 13. 0	99300.00	23. 49. 55	702.46	59. 35
30. 20			100.65	
83. 43. 20	99400.00	23. 51. 22	601.81	59. 38
32. 40			100.56	
84. 16. 0	99500.00	23. 52. 48	501.25+	59. 42
36. 30			100.45	
84. 52. 30	99600.00	23. 54. 14	400.80	59. 46
41. 9			100.35	
85. 33. 39	99700.00	23. 55. 41	300.45	59. 49
48. 54			100.25	
86. 22. 33	99800.00	23. 57. 7	200.20	59. 53
1. 3. 42			100.15	
87. 26. 15	99900.00	23. 58. 34	100.05	59. 56
2. 33. 45			100.05	
90. 0. 0.	100000.00	24. 0 0	000000.00	60. 0

To the table, Kepler prefixes a pretty considerable tract, containing the construction of the logarithms, and a demonstration of their properties and structure, in which he considers logarithms, in the true and legitimate way, as the measures of ratios, as shall be shown more particularly hereafter in the next part, where we shall treat of the construction of logarithms.

Kepler also introduced the logarithmic calculus into his Rudolphine tables, published in 1627; and inserted in that work several logarithmic tables; as, first, a table similar to that above described, except that the second, or column of sines, or of absolute numbers, is omitted, and, instead of it, another column is added, showing what part of the quadrant each arc is equal to, namely the quotient, expressed in integers and sexagesimal parts, arising from the dividing the whole quadrant by each given arc; 2dly, Napier's table of logarithmic sines to every minute of the quadrant; also two other smaller tables, adapted for the purposes of eclipses and the latitudes of the planets. In this work also Kepler gives a succinct account of logarithms, with the description and use of those that are contained in these tables. And here it is that he mentions Justus Byrgius, as having had logarithms before Napier published them.

Besides the above, some few others published logarithms of the same kind about this time. But let us now return to treat of the history of the common or Briggs's logarithms, so called because he first computed them, and first mentioned them, and recommended them to Napier, instead of the first kind by him invented.

Mr. Henry Briggs, not less esteemed for his great probity, and other eminent virtues, than for his excellent skill in mathematics, was at the time of the publication of Napier's logarithms, in 1614, professor of geometry in Gresham college in London, having been appointed the first professor after its institution: which appointment he held till January 1620, when he was chosen, also the first, Savilian professor of Geometry at Oxford, where he died January the 26th, 163$\frac{0}{1}$, aged about 74 years.

On the publication of Napier's logarithms, Briggs immediately applied himself to the study and improvement of them. In a letter to Mr. (afterwards Archbishop) Usher, dated the 10th of March 1615, he writes, "that he was wholly taken up and employed about the noble invention of logarithms, lately discovered." And again, "Napier lord of Markinston hath set my head and hands at work with his new and admirable logarithms: I hope to see him this summer, if it please God; for I never saw a book which pleased me better, and made me more wonder." Thus we find that Briggs began very early to compute logarithms: but these were not of the same kind with Napier's, in which the logarithm of the ratio of 10 to 1 was 2·3025851 &c; for, in Briggs's first attempt he made 1 the logarithm of that ratio; and, from the evidence we have, it appears that he was the first person who formed the idea of this change in the scale, which he presently and liberally communicated, both to the public in his lectures, and to lord Napier himself, who afterwards said that he also had thought of the same thing; as appears by the following extract, translated from

the preface to Briggs's *Arithmetica Logarithmica*: "Wonder not (says he) that these logarithms are different from those which the excellent baron of *Marchiston* published in his Admirable Canon. For when I explained the doctrine of them to my auditors at Gresham college in London, I remarked that it would be much more convenient, the logarithm of the sine total or radius being 0 (as in the *Canon Mirificus*), if the logarithm of the 10th part of the said radius, namely, of 5° 44′ 21″, were 100000 &c; and concerning this I presently wrote to the author; also, as soon as the season of the year and my public teaching would permit, I went to Edinburgh, where being kindly received by him, I staid a whole month. But when we began to converse about the alteration of them, he said that he had formerly thought of it, and wished it; but that he chose to publish those that were already done, till such time as his leisure and health would permit him to make others more convenient. And as to the nature of the change, he thought it more expedient that 0 should be made the logarithm of 1: and 100000 &c. the logarithm of radius; which I could not but acknowledge was much better. Therefore, rejecting those which I had before prepared, I proceeded, at his exhortation, to calculate these: and the next summer I went again to Edinburgh, to show him the principle of them; and should have been glad to do the same the third summer, if it had pleased God to spare him so long."

So that it is plain that Briggs was the inventor of the present scale of logarithms, in which 1 is the logarithm of the ratio of 10 to 1, and 2 that of 100 to 1, &c; and that the share which Napier had in them, was only advising Briggs to begin at the lowest number 1, and make the logarithms, or artificial numbers, as Napier had also called them, to *increase* with the natural numbers, instead of *decreasing*; which made no alteration in the figures that expressed Briggs's logarithms, but only in their affection or signs, changing them from negative to positive; so that Briggs's first logarithms to the numbers in the second column of the annexed tablet, would have been as in the first column; but after they were changed, as they are here in the third column: which is a change of no essential difference, as the logarithm of the ratio of 10 to 1, the radix of the natural system of numbers, continues the same, a change in the logarithm of that ratio being the only circumstance that can essentially alter the system of logarithms, the logarithm of 1 being 0. And the reason why Briggs, after that interview, rejected what he had before done, and began anew, was probably because he had adapted his new logarithms to the approximate sines of arcs instead of the round or integer numbers, and not from their being logarithms of another system, as were those of Napier.

B	Num.	N
n	10^{-n}	$-n$
3	·001	—3
2	·01	—2
1	·1	—1
0	1	0
—1	10	1
—2	100	2
—3	1000	3
$-n$	10^{n}	n

On Briggs's return from Edinburgh to London the second time, namely, in 1617, he printed the first thousand logarithms, to eight places of figures, besides the index, under the title of *Logarithmorum Chilias Prima*. But these seem not to have been published till after

the death of Napier, which happened on the 3d of April 1618, as before said; for, in the preface to them, Briggs says, "Why these logarithms differ from those set forth by their most illustrious inventor, of ever respectful memory, in his *Canon Mirificus*, IT IS TO BE HOPED his posthumous work will shortly make appear." And as Napier, after communication had with Briggs, on the subject of altering the scale of logarithms, had given notice, both in Wright's translation, and in his own *Rabdologia*, printed in 1617, of his intention to alter the scale (though it appears very plainly that he never intended to compute any more), without making any mention of the share which Briggs had in the alteration, this gentleman modestly gave the above hint. But not finding any regard paid to it in the said posthumous work, published by lord Napier's son in 1619, where the alteration is again adverted to, but still without any mention of Briggs; this gentleman thought he could not do less than state the grounds of that alteration himself, as they are above extracted from his work published in 1624.

Thus, upon the whole matter, it seems evident that Briggs, whether he had thought of this improvement in the construction of logarithms, of making 1 the logarithm of the ratio of 10 to 1, before lord Napier, or not (which is a secret that could be known only to Napier himself), was the first person who communicated the idea of such an improvement to the world; and that he did this in his lectures to his auditors at Gresham college in the year 1615, very soon after his perusal of Napier's *Canon Mirificus Logarithmorum* in the year 1614. He also mentioned it to Napier, both by letter in the same year, and on his first visit to him in Scotland in the summer of the year 1616, when Napier approved the idea, and said it had already occurred to himself, and that he had determined to adopt it. It would therefore have been more candid in lord Napier to have told the world, in the second edition of this book, that Mr. Briggs had mentioned this improvement to him, and that he had thereby been confirmed in the resolution he had already taken, before Mr. Briggs's communication with him (if indeed that was the fact), to adopt it in that his second edition, as being better fitted to the decimal notation of arithmetic which was in general use. Such a declaration would have been but an act of justice to Mr. Briggs; and the not having made it, cannot but incline us to suspect that lord Napier was desirous that the world should ascribe to him alone the merit of this very useful improvement of the logarithms, as well as that of having originally invented them; though, if the having first communicated an invention to the world be sufficient to entitle a man to the honour of having first invented it, Mr. Briggs had the better title to be called the first inventor of this happy improvement of logarithms.

In 1620, two years after the *Chilias Prima* of Briggs came out, Mr. Edmund Gunter published his *Canon of Triangles*, which contains the artificial or logarithmic sines and tangents, for every minute, to seven places of figures, besides the index, the logarithm of radius being 10·0 &c. These logarithms are of the kind last agreed upon by Napier and Briggs, and they were the first tables of logarithmic sines and tangents that were published of this sort. Gunter also, in 1623,

reprinted the same in his book *De Sectore et Radio*, together with the *Chilias Prima* of his old colleague Mr. Briggs, he being professor of astronomy at Gresham college when Briggs was professor of geometry there, Gunter having been elected to that office the 6th of March 1619, and enjoyed it till his death, which happened on the 10th of December, 1626, about the forty-fifth year of his age. In 1623 also, Gunter applied these logarithms of numbers, sines, and tangents, to straight lines drawn on a ruler; with which, proportions in common numbers and trigonometry were resolved by the mere application of a pair of compasses; a method founded on this property, that the logarithms of the terms of equal ratios are equidifferent. This instrument, in the form of a two-foot scale, is now in common use for navigation, and other purposes, and is commonly called the Gunter. He also greatly improved the sector for the same uses. Gunter was the first who used the word *co-sine* for the sine of the complement of an arc. He also introduced the use of arithmetical complements into the logarithmical arithmetic, as is witnessed by Briggs, chap. XV. Arith. Log. And it has been said, that he started the idea of the logarithmic curve, which was so called because the segments of its axis are the logarithms of the corresponding ordinates.

The logarithmic lines were afterwards drawn in various other ways. In 1627, they were drawn by Wingate on two separate rulers sliding against each other, to save the use of compasses in resolving proportions. They were also, in 1627, applied to concentric circles, by Oughtred. Then in a spiral form by a Mr. Milburne of Yorkshire about the year 1650. And, lastly, in 1657, on the present sliding rule, by Seth Partridge.

The discoveries relating to logarithms were carried to France by Mr. Edmund Wingate, but not first of all, as he erroneously says in the preface to his book. He published at Paris, in 1624, two small tracts in the French language: and afterwards at London, in 1626, an English edition of the same, with improvements. In the first of these, he teaches the use of Gunter's ruler; and in the other, that of Briggs's logarithms, and the artificial sines and tangents. Here are contained also, tables of those logarithms, sines, and tangents, copied from Gunter. The edition of these logarithms printed at London in 1635, and the former editions also, I suppose, has the units figures disposed along the tops of the columns, and the tens down the margins, like our tables at present; with the whole logarithm, which was only to six places of figures, in the angle of meeting: which is the first instance that I have seen of this mode of arrangement.

But proceed we now to the larger structure of logarithms.

Briggs had continued from the beginning to labour with great industry at the computation of those logarithms of which he before published a short specimen in small numbers. And, in 1624, he produced his *Arithmetica Logarithmica*—a stupendous work for so short a time!—containing the logarithms of 30000 natural numbers, to fourteen places of figures besides the index, namely, from 1 to 20000, and from 90000 to 100000; together with the differences of the logarithms. Some writers say that there was another *chiliad*, namely,

from 100000 to 101000; but none of the copies that I have seen have more than the 30000 above mentioned, and they were all regularly terminated in the usual way with the word FINIS. The preface to these logarithms contains, among other things, an account of the alteration made in the scale by Napier and himself, from which we before gave an extract; and an earnest solicitation to others to undertake the computation for the intermediate numbers, offering to give instructions, and paper ready ruled for that purpose, to any persons so inclined to contribute to the completion of so valuable a work. In the introduction, he gives also an ample treatise on the construction and uses of these logarithms, which will be particularly described hereafter.——By this invitation, and other means, he had hopes of collecting materials for the logarithms of the intermediate 70000 numbers, whilst he should employ his own labour more immediately on the canon of logarithmic sines and tangents, and so carry on both works at once; as indeed they were both equally necessary, and he himself was now pretty far advanced in years.

Soon after this, Adrian Vlacq, or Flack, of Gouda in Holland, completed the intermediate seventy chiliads, and republished the *Arithmetica Logarithmica* at that place, in 1627 and 1628, with those intermediate numbers, making in the whole the logarithms of all numbers to 100000, but only to ten places of figures. To these was added a table of artificial sines, tangents, and secants, to every minute of the quadrant.

Briggs himself lived also to complete a table of logarithmic sines and tangents for the hundredth part of every degree, to fourteen places of figures besides the index; together with a table of natural sines for the same parts to fifteen places, and the tangents and secants for the same to ten places; with the construction of the whole. These tables were printed at *Gouda*, under the care of Adrian Vlacq, and mostly finished off before 1631, though not published till 1633. But his death, which then happened, prevented him from completing the application and uses of them. However, the performing of this office, when dying, he recommended to his friend Henry Gellibrand, who was then professor of astronomy in Gresham college, having succeeded Mr. Gunter in that appointment. Gellibrand accordingly added a preface, and the application of the logarithms to plane and spherical trigonometry, &c; and the whole was printed at Gouda by the same printer, and brought out in the same year, 1633, as the *Trigonometria Artificialis* of Vlacq, who had the care of the press as above said. This work was called *Trigonometria Britannica;* and besides the arcs in degrees and centesms of degrees, it has another column, containing the minutes and seconds answering to the several centesms in the first column.

In 1633, as mentioned above, Vlacq printed at Gouda, in Holland, his *Trigonometria Artificialis; sive Magnus Canon Triangulorum Logarithmicus ad Decadas Secundorum Scrupulorum constructus.* This work contains the logarithmic sines and tangents to ten places of figures, with their differences, for every ten seconds in the quadrant. To them is also added Briggs's table of the first 20000 logarithms, but

carried only to ten places of figures besides the index, with their differences. The whole is preceded by a description of the tables, and the application of them to plane and spherical trigonometry, chiefly extracted from Briggs's *Trigonometria Britannica*, above mentioned.

Gellibrand published also, in 1635, *An Institution Trigonometricall*, containing the logarithms of the first 10000 numbers, with the natural sines, tangents, and secants, and the logarithmic sines and tangents, for degrees and minutes, all to seven places of figures, besides the index; as also other tables proper for navigation; with the uses of the whole. Gellibrand died the 9th of February 1636, in the 40th year of his age, to the great loss of the mathematical world.

Besides the persons hitherto mentioned, who were mostly computers of logarithms, many others have also published tables of those artificial numbers, more or less complete, and sometimes improved and varied in the manner and form of them. We may here just advert to a few of the principal of these.

In 1626, D. Henrion published, at Paris, a treatise concerning Briggs's logarithms of common numbers from 1 to 20000, to eleven places of figures; with the sines and tangents to eight places only.

In 1631, was printed, at London, by one George Miller, a book containing Briggs's logarithms, with their differences, to ten places of figures besides the index, for all numbers to 100000; as also the logarithmic sines, tangents, and secants, for every minute of the quadrant; with the explanation and uses in English.

The same year, 1631, Richard Norwood published his *Trigonometrie*; in which we find Briggs's logarithms for all numbers to 10000, and for the sines, tangents, and secants, to every minute, both to seven places besides the index.—In the conclusion of the trigonometry, he complains of the unfair practices of printing Vlacq's book in 1627 or 1628, and the book mentioned in the last article. His words are, "Now whereas I have here, and in sundry places in this book, cited Mr. Briggs his *Arithmetica Logarithmica* (lest I may seem to abuse the reader), you are to understand not the book put forth about a month since in English, as a translation of his, and with the same title; being nothing like his, nor worthy his name; but the book which himself put forth with this title in Latin, being printed at London anno 1621. And here I have just occasion to blame the ill dealing of these men, both in the matter before mentioned, and in printing a second edition of his *Arithmetica Logarithmica* in Latin, whilst he lived, against his mind and liking; and brought them over to sell, when the first were unsold; so frustrating those additions which Mr. Briggs intended in his second edition, and moreover leaving out some things that were in the first edition, of special moment. a practice of very ill consequence, and tending to the great disparagement of such as take pains in this kind."

Francis Bonaventure Cavalerius published at Bologna, in 1632, his *Directorium Generale Uranometricum*, in which are tables of Briggs's logarithms of sines, tangents, secants, and versed sines, each to eight places, for every second of the first five minutes, for every five seconds from five to ten minutes, for every ten seconds from ten to twenty minutes, for every twenty seconds from twenty to thirty minutes, for

every thirty seconds from 30′ to 1° 30′, and for every minute in the rest of the quadrant: which is the first table of logarithmic versed sines that I know of. In this book are contained also the logarithms of the first ten chiliads of natural numbers, namely, from 1 to 10000, disposed in this manner: all the twenties at top, and from 1 to 19 on the side, the logarithm of the sum being in the square of meeting. In this work, also, I think Cavalerius gave the method of finding the area or spherical surface contained by various arcs described on the surface of a sphere; which had before been given by Albert Girard, in his Algebra, printed in the year 1629.

Also, in the *Trigonometria* of the same author, Cavalerius, printed in 1643, besides the logarithms of numbers from 1 to 1000, to eight places, with their differences, we find both natural and logarithmic sines, tangents, and secants, the former to seven, and the latter to eight places; namely, to every 10″ of the first 30 minutes, to every 30″ from 30′ to 1°; and the same for their complements, or backwards through the last degree of the quadrant; the intermediate 88° being to every minute only.

Mr. Nathaniel Roe, "Pastor of Benacre in Suffolke," also reduced the logarithmic tables to a contracted form, in his *Tabulæ Logarithmicæ*, printed at London in 1633. Here we have Briggs's logarithms of numbers from 1 to 100000, to eight places; the fifties placed at top, and from 1 to 50 on the side; also the first four figures of the logarithms at top, and the other four down the columns. They contain also the logarithmic sines and tangents to every 100th part of degrees, to ten places.

Ludovicus Frobenius published at Hamburg, in 1634, his *Clavis Universa Trigonometriæ*, containing tables of Briggs's logarithms of numbers, from 1 to 2000; and of sines, tangents, and secants, for every minute; both to seven places.

But the table of logarithms of common numbers was reduced to its most convenient form by John Newton, in his *Trigonometria Britannica*, printed at London in 1658, having availed himself of both the improvements of Wingate and Roe, namely, uniting Wingate's disposition of the natural numbers with Roe's contracted arrangement of the logarithms, the numbers being all disposed as in our best tables at present, namely, the units along the top of the page, and the tens down the left-hand side, also the first three figures of each logarithm in the first column, and the remaining five figures in the other columns, the logarithms being to eight places. This work contains also the logarithmic sines and tangents, to eight figures besides the index, for every 100th part of a degree, with their differences, and for 1000th parts in the first three degrees.—In the preface to this work, Newton takes occasion, as Wingate and Norwood had done before, as well as Briggs himself, to censure the unfair practices of some other publishers of logarithms. He says, "In the second part of this institution, thou art presented with Mr. Gellibrand's Trigonometrie, faithfully translated from the Latin copy, that which the author himself published under the title of *Trigonometria Britannica*, and not that which Vlacq the Dutchman styles *Trigonometria Artificialis*, from whose corrupt and

imperfect copy that seems to be translated which is amongst us generally known by the name of *Gellibrand's Trigonometry*; but those who either knew him, or have perused his writings, can testify that he was no admirer of the old sexagenary way of working; nay that he did preferre the decimal way before it, as he hath abundantly testified in all the examples of this his trigonometry, which differs from that other which Vlacq hath published, and that which hath hitherto borne his name in English, as in the form, so likewise in the matter of it; for in the two last mentioned editions, there is something left out in the second chapter of plain triangles, the third chapter wholly omitted, and a part of the third in the spherical; but in this edition nothing: something we have added to both, by way of explanation and demonstration."

In 1670, John Caramuel published his *Mathesis Nova*, in which are contained 1000 logarithms both of Napier's and Briggs's form, as also 1000 of what he calls the Perfect Logarithms, namely, the same as those which Briggs first thought of, which differ from the last only in this, that the one increases while the other decreases, the radix or logarithm of the ratio of 10 to 1 being the same in both.

The books of logarithms have since become very numerous, but the logarithms are mostly of that kind invented by Briggs, and which are now in common use. Of these, the most noted for their accuracy or usefulness, besides the works above mentioned, are Vlacq's small volume of tables, particularly that edition printed at Lyons in 1670; also tables printed at the same place in 1760; but most especially the tables of Sherwin and Gardiner. Of these, Sherwin's *Mathematical Tables*, in 8vo. formed the most complete collection of any, containing, besides the logarithms of all numbers to 101000, the sines, tangents, secants, and versed sines, both natural and logarithmic, to every minute of the quadrant. The first edition was in 1706: but the third edition, in 1742, which was revised by Gardiner, is esteemed the most correct of any, though containing many thousands of errors in the final figures: as to the last or fifth edition, in 1771, it is so erroneously printed that no dependance can be placed in it, being the most inaccurate book of tables I ever knew; I have a list of several thousand errors which I have corrected in it, as well as in Gardiner's octavo edition.

Gardiner also printed at London, in 1742, a quarto volume of "Tables of Logarithms, for all numbers from 1 to 102100, and for the sines and tangents to every ten seconds of each degree in the quadrant; as also, for the sines of the first 72 minutes to every single second: with other useful and necessary tables;" namely, a table of Logistical Logarithms, and three smaller tables to be used for finding the logarithms of numbers to twenty places of figures. Of these tables of Gardiner, only a small number was printed, and that by subscription; and they have always been held in great estimation for their accuracy and usefulness.

An edition of Gardiner's collection was also elegantly printed at Avignon in France, in 1770, with some additions, namely, the sines and tangents for every single second in the first four degrees, and a small table of hyperbolic logarithms, copied from a treatise on Fluxions

by the late ingenious Mr. Thomas Simpson: but this is not quite so correct as Gardiner's own edition. The tables in all these books are to seven places of figures.

There have also lately appeared the following accurate and elegant books of logarithms; viz.

1. Logarithmic Tables, by the late Mr. Michael Taylor, a pupil of mine, and author of The Sexagesimal Table. His work consists of three tables; 1st. the Logarithms of Common Numbers from 1 to 1260, each to 8 places of figures; 2dly, The Logarithms of all Numbers from 1 to 101000, each to 7 places; 3dly. The Logarithmic Sines and Tangents to every Second of the Quadrant, also to 7 places of figures; a work that must prove highly useful to such persons as may be employed in very nice and accurate calculations, such as astronomical tables, &c. The author dying when the tables were nearly all printed off, the Rev. Dr. Maskelyne, Astronomer Royal, has supplied a preface, containing an account of the work, with excellent precepts for the explanation and use of the tables: the whole very accurately and elegantly printed on large 4to. 1792.

2. "Tables Portatives de Logarithmes, publiées à Londres, par Gardiner," &c. This work is most beautifully printed in a neat portable 8vo volume, and contains all the tables in Gardiner's 4to volume, with some additions and improvements, and with a considerable degree of accuracy. On this, as well as several other occasions, it is but justice to remark the extraordinary spirit and elegance with which the learned men, and the artisans of the French nation, undertake and execute works of merit. Printed at Paris, by Didot, 1793.

3. A second edition of the "Tables Portatives de Logarithmes," &c. printed at Paris with the Stereotypes, of solid pages, in 8vo, 1795, by Didot. This edition is greatly enlarged, by an extension of the old tables and many new ones; among which are the log. sines and tangents to every ten thousandth part of the quadrant, viz. in which the quadrant is first divided into 100 equal parts, and each of these into 100 parts again.

4. Other more extensive tables, not yet quite completed, ordered by the Board of Longitude in France, and under the direction of M. Prony, in which the quadrant is decimally divided into 10000 equal parts.

"The logarithmic canon serves to find readily the logarithm of any assigned number; and we are told by Dr. Wallis, in the second volume of his Mathematical Works, that an antilogarithmic canon, or one to find as readily the number corresponding to every logarithm, was begun, he thinks, by Harriot the algebraist (who died in 1621), and completed by Walter Warner, the editor of Harriot's works, before 1640; which ingenious performance, it seems, was lost, for want of encouragement to publish it."

"A small specimen of such numbers was published in the Philosophical Transactions for the year 1714, by Mr. Long of Oxford; but it was not till 1742 that a complete antilogarithmic canon was published by Mr. James Dodson, wherein he has computed the numbers corresponding to every logarithm from 1 to 100000, for 11 places of figures."

THE CONSTRUCTION OF LOGARITHMS, &c.

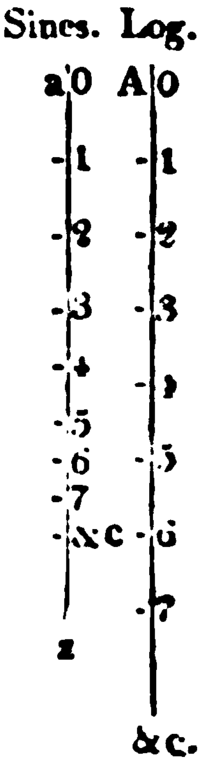
HAVING described the several kinds of logarithms, their rise and invention, their nature and properties, and given some account of the principal early cultivators of them, with the chief collections that have been published of such tables; proceed we now to deliver a more particular account of the ideas and methods employed by each author, and the peculiar modes of construction made use of by them.

And first, of the great inventor himself, Lord Napier.

Napier's Construction of Logarithms.

The Inventor of logarithms did not adapt them to the series of natural numbers 1, 2, 3, 4, 5, &c, as it was not his principal idea to extend them to all arithmetical operations in general; but he confined his labours to that circumstance which first suggested the necessity of the invention, and adapted his logarithms to the approximate numbers which express the natural sines of every minute in the quadrant, as they had been set down by former writers on trigonometry.

The same restricted idea was pursued through his method of constructing the logarithms. As the lines of the sines of all arcs are parts of the radius, or sine of the quadrant, which was therefore called the *sinus totus*, or whole sine, he conceived the line of the radius to be described or run over, by a point moving along it in such a manner, that in equal portions of time it generated, or cut off, parts, in a decreasing geometrical progression, leaving the several remainders, or sines in geometrical progression also; while another point, in an indefinite line, described equal parts of *it* in the same equal portions of time; so that the respective sums of these, or the whole line generated, were always the arithmeticals or logarithms of these sines.



Thus, az is the given radius, on which all the sines are to be taken, and A&c, the indefinite line containing the logarithms; these lines being each generated by the motion of points, beginning at A, a. Now, at the end of the 1st, 2d, 3d, &c, moments, or equal small portions of time, the moving points being found at the places marked 1, 2, 3, &c, then za, z1, z2, z3, &c, will be the series of natural sines, and A 0 (or 0), A1, A2, A3, &c, will be their logarithms; supposing the point which generates az to move every where with a velocity decreasing in proportion to its distance from z, namely, its velocity in the points 0, 1, 2, 3, &c, to be respectively as the distances z0, z1, z2, z3, &c, while the velocity of the point generating the logarithmic line A&c, remains constantly the same as at first in the point A or 0.

Hitherto the author had not fully limited his system or scale of logarithms, having only supposed one condition or limitation, namely, that the logarithm of the radius az should be 0. Whereas two independent conditions, no matter what, are necessary to limit the scale or system of logarithms. It did not occur to him that it was proper to form the other limit, by affixing some particular value to an assigned

number, or part of the radius: but, as another condition was necessary, he assumed *this* for it, namely, that the two generating points should begin to move at a and A with equal velocities; or that the increments a1 and A1, described in the first moments, should be equal; as he thought this circumstance would be attended with some little ease in the computation. And this is the reason that, in his table, the natural sines and their logarithms, at the complete quadrant, have equal differences; and this is also the reason why his scale of logarithms happens accidentally to agree with what have since been called the hyperbolic logarithms, which have numeral differences equal to those of their natural numbers at the beginning; except only that these latter increase with the natural numbers, and his on the contrary decrease; the logarithm of the ratio of 10 to 1 being the same in both, namely 2·30258509.

And here, by the way, it may be observed, that Napier's manner of conceiving the generation of the lines of the natural numbers, and their logarithms, by the motion of points, is very similar to the manner in which Newton afterwards considered the generation of magnitudes in his doctrine of fluxions; and it is also remarkable, that, in art. 2 of the *Habitudines Logarithmorum et suorum naturalium numerorum invicem*, in the appendix to the *Constructio Logarithmorum*, Napier speaks of the velocities of the increments or decrements of the logarithms, in the same way as Newton does of his fluxions, namely, where he shows that those velocities, or fluxions, are inversely as the sines or natural numbers of the logarithms; which is a necessary consequence of the nature of the generation of those lines as described above; with this alteration however, that now the radius az must be considered as generated by an equable motion of the point, and the indefinite line A &c by a motion increasing in the same ratio as the other before decreased; which is a supposition that Napier must have had in view when he stated that relation of the fluxions.

Having thus limited his system, Napier proceeds, in the posthumous work of 1619, to explain his construction of the logarithmic canon; and this he effects in various ways, but chiefly by generating, in a very easy manner, a series of proportional numbers, and their arithmeticals or logarithms; and then finding, by proportion, the logarithms to the natural sines, from those of the nearest numbers among the original proportionals.

After describing the necessary cautions he made use of, to preserve a sufficient degree of accuracy, in so long and complex a process of calculation; such as annexing several ciphers, as decimals separated by a point, to his primitive numbers, and rejecting the decimals thence resulting after the operations were completed; setting the numbers down to the nearest unit in the last figure; and teaching the arithmetical processes of adding, subtracting, multiplying, and dividing the limits between which certain unknown numbers must lie, so as to obtain the limits between which the results must also fall: I say, after describing such particulars, in order to clear and smooth the way, he enters on the great field of calculation itself. Beginning at radius 10000000, he first constructs several descending geometrical series, but of such a nature, that they are all quickly formed by an easy con-

tinual subtraction, and a division by 2, or by 10, or 100, &c, which is done by only removing the decimal point so many places towards the left hand, as there are ciphers in the divisor. He constructs three tables of such series: The first of these consist of 100 numbers, in the proportion of radius to radius minus 1, or of 10000000 to 9999999; all of which are found by only subtracting from each its 10000000th part, which part is also found by only removing each figure seven places lower: the last of these 100 proportionals is found to be 9999900·0004950.

The 2d table contains 50 numbers, which are in the continual proportion of the first to the last in the first table, namely, of 10000000·0000000, to 9999900·0004950, or nearly the proportion of 100000 to 99999; these therefore are found by only removing the figures of each number 5 places lower, and subtracting them from the same number: the last of these he finds to be 9995001·222927. And a specimen of these two tables is here annexed.

No.	First Table.	Second Table.
1	10000000.0000000	10000000.000000
2	9999999.0000000	9999900.000000
3	9999998.0000001	9999800.001000
4	9999997.0000003	9999700.003000
&c.	&c till the 100th term,	&c to the 50th term
50	which will be	9995001.222927
100	9999900.0004950	

The 3d table consists of 69 columns, and each column of twenty-one numbers or terms, which terms, in every column, are in the continual proportion of 10000 to 9995, that is, nearly as the first is to the last in the 2d table; and as 10000 exceeds 9995, by the 2000th part, the terms in every column will be constructed by dividing each upper number by 2, removing the figures of the quotient 3 places lower, and then subtracting them; and in this way it is proper to construct only the first column of 21 numbers, the last of which will be 9900473·5780: but the 1st, 2d, 3d, &c, numbers, in all the columns, are in the continual proportion of 100 to 99, or nearly the proportion of the first to the last in the first column; and therefore these will be found by removing the figures of each preceding number two places lower, and subtracting them, for the like number in the next column. A specimen of this 3d table is as here below.

The Third Table.

Terms	1st Column.	2d Column.	3d Column.	&c till the	69th Column.
1	10000000.0000	9900000.0000	9801000.0000	&c to	5048858.8900
2	9995000.0000	9895050.0000	9796099.5000	the 4th,	5046334.4605
3	9990002.5000	9890102.4750	9791201.4503	5th, 6th,	5043811.2932
4	9985007.4987	9885157.4237	9786305.8495	7th, &c	5041289.3879
5	9980014.9950	9880214.8451	9781412.6967	col. till	5038768.7435
&c	&c till	&c	&c	the last	&c
21	9900473.5780	9801468.8423	9703454.1539	or	4998609.4034

Thus he had, in this 3d table, interposed between the radius and its half, 68 numbers in the continual proportion of 100 to 99; and interposed between every two of these, 20 numbers in the proportion

of 10000 to 9995: and again, in the 2d table, between 10000000 and 9995000, the two first of the third table, he had 50 numbers in the proportion of 100000 to 99999; and lastly, in the 1st table, between 10000000 and 9999900, or the two first in the 2d table, 100 numbers in the proportion of 10000000 to 9999999; that is, in all, about 1600 proportionals; all found in the most simple manner, by little more than easy subtractions; which proportionals nearly coincide with all the natural sines from 90° down to 30°.

To obtain the logarithms of all those proportionals, he demonstrates several properties and relations of the numbers and logarithms, and illustrates the manner of applying them. The principal of these properties are as follow: 1st, that the logarithm of any sine is greater than the difference between that sine and the radius, but less than the said difference when increased in the proportion of the sine to radius*; and 2dly, that the difference between the logarithms of two sines is less than the difference of the sines increased in the proportion of the less sine to radius, but greater than the said difference of the sines increased in the proportion of the greater sine to radius.†

Hence, by the first theorem, the logarithm of 10000000, the radius or first term in the first table, being 0, the logarithm of 9999999, the 2d term, will be between 1 and 1.0000001, and will therefore be equal to 1.00000005 very nearly: and this will be also the common difference of all the terms or proportionals in the first table: therefore by the continual addition of this logarithm, there will be obtained the logarithms of all these 100 proportionals; consequently 100 times the said first logarithm, or the last of the above sums, will give 100·000005, for the logarithm of 9999900·0004950, the last of the said 100 proportionals.

Then, by the 2d theorem, it easily appears, that ·0004950 is the difference between the logarithms of 9999900·0004950 and 9999900, the last term of the first table, and the 2d term of the second table;

* By this first theorem, r being radius, the logarithm of the sine s is between $r-s$ and $\frac{r-s}{s}r$; and therefore, when s differs but little from r, the logarithm of s will be nearly equal to $\frac{(r+s)\times(r-s)}{2s}$, the arithmetical mean between the limits $r-s$ and $\frac{r-s}{s}r$; but still nearer to $(r-s)\sqrt{\frac{r}{s}}$ or $\frac{r-s}{s}\sqrt{rs}$, the geometrical mean between the said limits.

† By this second theorem, the difference between the logarithms of the two sines S and s, lying between the limits $\frac{S-s}{s}r$ and $\frac{S-s}{S}r$, will, when those sines differ but little, be nearly equal to $\frac{S^2-s^2}{2Ss}r$ or $\frac{(S+s)\times(S-s)}{2Ss}r$, their arithmetical mean; or nearly $=\frac{S-s}{\sqrt{Ss}}r$, the geometrical mean; or nearly $=\frac{S-s}{S+s}2r$, by substituting in the last denominator, $\frac{1}{2}(S+s)$ for $\sqrt{Ss}$, to which it is nearly equal.

this then being added to the last logarithm, gives 100·0005000 for the logarithm of the said 2d term, as also the common difference of the logarithms of all the proportions in the 2d table; and therefore, by continually adding it, there will be generated the logarithms of all these proportionals in the second table; the last of which is 5000·025, answering to 9995001·222927, the last term of that table.

Again, by the 2d theorem, the difference between the logarithms of this last proportional of the second table, and the 2d term in the first column of the third table, is found to be 1.2235387; which being added to the last logarithm, gives 5001·2485387 for the logarithm of 9995000, the said 2d term of the third table, as also the common difference of the logarithms of all the proportionals in the first column of that table; and that this therefore being continually added, gives all the logarithms of that first column, the last of which is 100024·97077, the logarithm of 9900473.5780, the last term of the said column.

Finally, by the 2d theorem again, the difference between the logarithms of this last number and 9900000, the 1st term in the second column, is 478·3502; which being added to the last logarithm, gives 100503·3210 for the logarithm of the said 1st term in the second column, as well as the common difference of the logarithms of all the numbers on the same line in every line of the table, namely, of all the 1st terms, of all the 2d, of all the 3d, of all the 4th, &c terms in all the columns; and which therefore, being continually added to the logarithms in the first column, will give the corresponding logarithms in all the other columns.

And thus is completed what the author calls the radical table, in which he retains only one decimal place in the logarithms (or *artificials*, as he always call them in his tract on the construction), and four in the naturals. A specimen of the table is as here follows:

Radical Table.

Term.	1st Column.		2d Column.		69th Column.	
	Naturals.	Artificials	Naturals.	Artificials.	Naturals.	Artificials.
1	10000000.0000	0	9900000.0000	100503.3	5048858.8900	6834225.9
2	9995000.0000	5001.2	9895050.0000	105504.6	5046333.4605	6839227.1
3	9990002.5000	10002.5	9890102.4750	110505.8	5043811.2932	6844228.3
4	9985007.4987	15003.7	9885157.4237	115507.1	5041289.3879	6849229.6
5	9980014.9950	20005.0	9880214.8451	120508.3	5038768.7435	6854230.8
&c	&c till	&c	&c	&c	&c	&c
21	9900473.5780	100025.0	9801468.8423	200528.2	4998609.4034	6934250.8

Having thus, in the most easy manner, completed the radical table, by little more than mere addition and subtraction, both for the natural numbers and logarithms; the logarithmic sines were easily deduced from it by means of the 2d theorem, namely, taking the sum and difference of each tabular sine and the nearest number in the radical table, annexing 7 ciphers to the difference, dividing the result by the sum, then half the quotient gives the difference between the logarithms of the

said numbers, namely, between the tabular sine and radical number; consequently adding or subtracting this difference, to or from the given logarithm of the radical number, there is obtained the logarithmic sine required. And thus the logarithms of all the sines, from radius to the half of it, or from 90° to 30°, were perfected.

Next, for determining the sines of the remaining 30 degrees, he delivers two methods. In the first of these he proceeds in this manner: Observing that the logarithm of the ratio of 2 to 1, or of half the radius, is 6931469·22, of 4 to 1 is the double of this, of 8 to 1 is triple of it, &c; that of 10 to 1 is 23025842·34, of 20 to 1 is the sum of the logarithms of 2 and 10; and so on, by composition for the logarithms of the ratios between 1 and 40, 80, 100, 200, &c, to 10000000; he multiplies any given sine, for an arc less than 30 degrees, by some of these numbers, till he finds the product nearly equal to one of the tabular numbers; then by means of this and the second theorem, the logarithm of this product is found; to which adding the logarithm that answers to the multiple above mentioned, the sum is the logarithm sought. But the other method is still much easier, and is derived from this property, which he demonstrates, namely, as half radius is to the sine of half an arc, so is the cosine of the said half arc, to the sine of the whole arc; or as ½ radius : sine of an arc : : cosine of the arc : sine of double arc; hence the logarithmic sine of an arc is found, by adding together the logarithms of half radius and of the sine of the double arc, and then subtracting the logarithmic cosine from the sum.

And thus the remainder of the sines, from 30° down to 0, are easily obtained. But in this latter way, the logarithmic sines for full one half of the quadrant, or from 0 to 45 degrees, he observes, may be derived; the other half having already been made by the general method of the radical table, by one easy division and addition or subtraction for each.

We have dwelt the longer on this work of the inventor of logarithms, because I have not seen, in any author, an account of his method of constructing his table, though it is perfectly different from any other method used by the later computers, and indeed, almost peculiar to his species of logarithms. The whole of this work manifests great ingenuity in the designer, as well as much accuracy. But notwithstanding the caution he took to obtain his logarithms true to the nearest unit in the last figure set down in the tables, by extending the numbers in the computations to several decimals, and other means, he had been disappointed of that end, either by the inaccuracy of his assistant computers or transcribers, or through some other cause; as the logarithms in the table are commonly very inaccurate. It is remarkable too, that in this tract on the construction of the logarithms, Lord Napier never calls them logarithms, but every where *artificials*, as opposed in idea to the natural numbers: and this notion of natural and artificial numbers, I take to have been his first idea of this matter, and that he altered the word *artificials* to *logarithms* in his first book, on the description of them, when he printedit, in the year 1614, and that he would also

have altered the word every where in this posthumous work if he had lived to print it: for in the two or three pages of appendix, annexed to the work by his son, from Napier's papers, he again always calls them logarithms. This appendix relates to the change of the logarithms to that scale in which 1 is the logarithm of the ratio of 10 to 1, the logarithm of 1, with or without ciphers, being 0; and it appears to have been written after Briggs communicated to him his idea of that change.

Napier here in this appendix also briefly describes some methods by which this new species of logarithms may be constructed. Having supposed 0 to be the logarithm of 1, and 1, with any number of ciphers, as 10000000000, the logarithm of 10, he directs to divide this logarithm of 10, and the successive quotients, ten times by 5; by which divisions there will be obtained these other ten logarithms, namely, 2000000000, 400000000, 80000000, 16000000, 3200000, 640000, 128000, 25600, 5120, 1024: then this last logarithm, and its quotients, being divided ten times by 2, will give these other ten logarithm, 512, 256, 128, 64, 32, 16, 8, 4, 2, 1. And the numbers answering to these twenty logarithms we are directed to find in this manner; namely, extract the 5th root of 10 (with ciphers), then the 5th root of that root, and so on, for ten continual extractions of the 5th root; so shall these ten roots be the natural numbers belonging to the first ten logarithms, above found in continually dividing by 5: next, out of the last 5th root we are to extract the square root, then the square root of this last root, and so on, for 10 successive extractions of the square root; so shall these last 10 roots be the natural numbers corresponding to the logarithms or quotients arising from the last ten divisions by the number 2. And from these twenty logarithms, 1, 2, 4, 8, 16, &c, and their natural numbers, the author observes that other logarithms and their numbers may be formed, namely, by adding the logarithms, and multiplying their corresponding numbers.

It is evident that this process would generate rather an antilogarithmic canon, such as Dodson's, than the table of Briggs; and that the method would also be very laborious, since, besides the very troublesome original extractions of the 5th roots, all the numbers would be very large, by the multiplication of which the successive secondary natural numbers are to be found.

Our author next mentions another method of deriving a few of the primitive numbers and their logarithms, namely, by taking continually geometrical means, first between 10 and 1, then between 10 and this mean, and again between 10 and the last mean, and so on; and taking the arithmetical means between their corresponding logarithms. He then lays down various relations between numbers and their logarithms; such as, that the products and quotients of numbers answer to the sums and differences of their logarithms, and that the powers and roots of numbers answer to the products and quotients of the logarithms by the index of the power or root, &c; as also that, of any two numbers whose logarithms are given, if each number be raised to the power denoted by the logarithm of the other, the two results

will be equal. He then delivers another method of making the logarithms to a few of the prime integer numbers, which is well adapted for constructing the common table of logarithms. This method easily follows from what has been said above; and it depends on this property, that the logarithm of any number in this scale, is 1 less than the number of places or figures contained in that power of the given number whose exponent is 10000000000, or the logarithm of 10, at least as to integer numbers, for they really differ by a fraction, as is shown by Mr. Briggs in his illustrations of these properties, printed at the end of this appendix to the construction of logarithms. I shall here set down one more of these relations, as the manner in which it is expressed is exactly similar to that of fluxions and fluents, and it is this: Of any two numbers, as the greater is to the less, so is the velocity of the increment or decrement of the logarithms at the less, to the velocity of the increment or decrement of the logarithms at the greater: that is, in our modern notation, as $X : Y :: \dot{y}$ to $\dot{x}$, where $\dot{x}$ and $\dot{y}$ are the fluxions of the logarithms of X and Y.

Kepler's Construction of Logarithms.

The logarithms of Briggs and Kepler were both printed the same year, 1624; but as the latter are of the same kind as Napier's, we shall here give this author's construction of them, before proceeding to that of Briggs's. We have already (pa. 31 *et seq.*) described the nature and form of Kepler's logarithms, showing that they are of the same kind as Napier's, but only a little varied in the form of the table. It may also be added, that, in general, the ideas which these two masters had on this subject, were of the same nature: only it was more fully and methodically laid down by Kepler, who expanded, and delivered in a regular science, the hints that were given by the illustrious inventor. The foundation and nature of their methods of construction are also the same, but only a little varied in their modes of applying them. Kepler here, first of any, treats of logarithms in the true and genuine way of the measures of ratios, or proportions*, as he calls them, and that in a very full and scientific manner: and this method of his was afterwards followed and abridged by Mercator, Halley, Cotes, and others, as we shall see in the proper places. Kepler first erects a regular and purely mathematical system of proportions, and the measures of proportions, treated at considerable length in a number of propositions, which are fully and chastely demonstrated by genuine mathematical reasoning, and illustrated by examples in numbers. This part contains and de-

* Kepler almost always uses the term *proportion* instead of *ratio*, which I also shall do in my account of his work, as well as conform in expressions and notations to his other peculiarities. It may also be here remarked, that I observe the same practice in describing the works of other authors, the better to convey the idea of their several methods and style. And this may serve to account for some seeming inequalities in the language of this history.

monstrates both the nature and the principles of the structure of logarithms. And in the second part he applies those principles in the actual construction of his table, which contains only 1000 numbers, and their logarithms, in the form as we before described; and in this part he indicates the various contrivances employed in deducing the logarithms of proportions one from another, after a few of the leading ones had been first formed, by the general and more remote principles. He uses the name *logarithms*, given them by the inventor, being the most proper, as expressing the very nature and essence of those artificial numbers, and containing as it were a definition in the very name of them; but without taking any notice of the inventor, or of the origin of those useful numbers.

As this tract is very curious and important in itself, and is besides very rare and little known, instead of a particular description only, I shall here give a brief translation of both the parts, omitting only the demonstrations of the propositions, and some rather long illustrations of them. The book is dedicated to Philip, landgrave of Hesse, but is without either preface or introduction, and commences immediately with the subject of the first part, which is entitled *The Demonstration of the Structure of Logarithms;* and the contents of it are as follow:

Postulate 1. That all proportions equal among themselves, by whatever variety of couplets of terms they may be denoted, are measured or expressed by the same quantity.

Axiom 1. If there be any number of quantities of the same kind, the proportion of the extremes is understood to be composed of all the proportions of every adjacent couplet of terms, from the first to the last.

1 *Proposition.* The mean proportional between two terms, divides the proportion of those terms into two equal proportions.

Axiom 2. Of any number of quantities regularly increasing, the means divide the proportion of the extremes into one proportion more than the number of the means.

Postulate 2. That the proportion between any two terms is divisible into any number of parts, until those parts become less than any proposed quantity.

An example of this section is then inserted in a small table, in dividing the proportion which is between 10 and 7 into 1073741824 equal parts, by as many mean proportionals wanting one, namely, by taking the mean proportional between 10 and 7, then the mean between 10 and this mean, and the mean between 10 and the last, and so on for 30 means, or 30 extractions of the square root, the last or 30th of which roots is 9999999996678205690 0; and the 30th power of 2, which is 1073741824, shows into how many parts the proportion between 10 and 7, or between 1000&c, and 700&c, is divided by 1073741824 means, each of which parts is equal to the proportion between 1000&c, and the 30th mean 999&c, that is, the proportion between 1000&c, and 999&c, is the 1073741824th part of the proportion between 10 and 7. Then by assuming the small difference 00000000033217943100, for the measure of the very small element of the proportion of 10 to 7, or for the measure of the proportion of 1000&c, to 999&c, or for the logarithm of this last term, and multiplying it by 1073741824, the number of parts, the product gives 35667.49481.37222.14400, for the logarithm of the less term 7 or 700&c.

Postulate 3. That the extremely small quantity or element of a pro-

portion may be measured or denoted by any quantity whatever; as, for instance, by the difference of the terms of that element.

2 *Proposition.* Of three continued proportionals, the difference of the two first has to the difference of the latter two, the same proportion which the first term has to the 2d, or the 2d to the 3d.

3 *Prop.* Of any continued proportionals, the greatest terms have the greatest difference, and the least terms the least.

4 *Prop.* In any continued proportionals, if the difference of the greatest terms be made the measure of the proportion between *them*, the difference of any other couplet will be less than the true measure of *their* proportion.

5 *Prop.* In continued proportionals, if the difference of the greatest terms be made the measure of their proportion, then the measure of the proportion of the greatest to any other term will be greater than *their* difference.

6 *Prop.* In continued proportionals, if the difference of the greatest term and any one of the less, taken not immediately next to it, be made the measure of their proportion, then the proportion which is between the greatest and any other term greater than the one before taken, will be less than the difference of those terms; but the proportion which is between the greatest term, and any one less than that first taken, will be greater than their difference.

7 *Prop.* Of any quantities placed according to the order of their magnitudes, if any two successive proportions be equal, the three successive terms which constitute them will be continued proportionals.

8 *Prop.* Of any quantities placed in the order of their magnitudes, if the intermediates lying between any two terms be not among the mean proportionals which can be interposed between the said two terms, then such intermediates do not divide the proportion of those two terms into commensurable proportions.

Besides the demonstrations, as usual, several definitions are here given; as of commensurable proportions, &c.

9 *Prop.* When two expressible lengths are not to one another as two figurate numbers of the same species, such as two squares, or two cubes, there cannot fall between them other expressible lengths, which shall be mean proportionals, and as many in number as that species requires, namely, one in the squares, two in the cubes, three in the biquadrats, &c.

10 *Prop.* Of any expressible quantities, following in the order of their magnitudes, if the two extremes be not in the proportion of two square numbers, or two cubes, or two other powers of the same kind, none of the intermediates divide the proportion into commensurables.

11 *Prop.* All the proportions, taken in order, which are between expressible terms that are in arithmetical proportion, are incommensurable to one another. As between 8, 13, 18.

12 *Prop.* Of any quantities placed in the order of their magnitude, if

the difference of the greatest terms be made the measure of their proportion, then the difference between any two others will be less than the measure of *their* proportion; and if the difference of the two least terms be made the measure of their proportion, then the differences of the rest will be greater than the measure of the proportion between *their* terms.

Corol. If the measure of the proportion between the greatest exceed their difference, then the proportion of this measure to the said difference, will be less than that of a following measure to the difference of its terms. Because proportionals have the same ratio.

13 *Prop.* If three quantities follow one another in the order of magnitude, the proportion of the two last will be contained in the proportion of the extremes, a less number of times than the difference of the two least is contained in the difference of the extremes: And, on the contrary, the proportion of the two greatest will be contained in the proportion of the extremes, oftener than the difference of the former is contained in that of the latter.

Corol. Hence, if the difference of the two greater be equal to the difference of the two less terms, the proportion between the two greater will be less than the proportion between the two less.

14 *Prop.* Of three equidifferent quantities, taken in order, the proportion between the extremes is more than double the proportion between the two greater terms.

Corol. Hence it follows, that half the proportion of the extremes is greater than the proportion of the two greatest terms, but less than the proportion of the two least.

15 *Prop.* If two quantities constitute a proportion, and each quantity be lessened by half the greater, the remainders will constitute a proportion greater than double the former.

16 *Prop.* The aliquot parts of incommensurable proportions are incommensurable to each other.

17 *Prop.* If one thousand numbers follow one another in the natural order, beginning at 1000, and differing all by unity, viz. 1000, 999, 998, 997,&c; and the proportion between the two greatest 1000, 999, by continual bisection, be cut into parts that are smaller than the excess of the proportion between the next two 999, 998, over the said proportion between the two greatest 1000, 999; and then for the measure of that small element of the proportion between 1000 and 999, there be taken the difference of 1000 and that mean proportional which is the other term of the element. Again, if the proportion between 1000 and 998 be likewise cut into double the number of parts which the former proportion, between 1000 and 999, was cut into: and then for the measure of the small element in this division, be taken the difference of its terms, of which the greater is 1000. And in the same manner, if the proportion of 1000 to the following numbers, as 997, &c, by continual bisection, be cut into particles of such magnitude, as may be between $\frac{1}{2}$ and $\frac{1}{4}$ of the element arising from the section of the first proportion between 1000 and 999, the measure

of each element will be given from the difference of its terms. Then, this being done, the measure of any one of the 1000 proportions will be composed of as many measures of its element as there are of those elements in the said divided proportion. And all these measures, for all the proportions, will be sufficiently exact for the nicest calculations.

All these sections and measures of proportions are performed in the manner of that described at postulate 2, and the operation is abundantly explained by numerical calculations.

18 *Prop*. The proportion of any number, to the first term 1000, being known: there will also be known the proportion of the rest of the numbers in the same continued proportion, to the said first term.

So from the known proportion between 1000 and 900, there is also known the proportion of 1000 to 810, and to 729;
And from 1000 to 800, also 1000 to 640, and to 512;
And from 1000 to 700, also 1000 to 490, and to 343;
And from 1000 to 600, also 1000 to 360, and to 216;
And from 1000 to 500, also 1000 to 250, and to 125.

Corol. Hence arises the precept for squaring, cubing, &c; as also for extracting the square root, cube root, &c, out of the first figures of numbers. For it will be, as the greatest number of the chiliad, as a denominator, is to the number proposed as a numerator, so is this to the square of the fraction, and so is this to the cube.

19 *Prop*. The proportion of a number to the first, or 1000, being known; if there be two other numbers in the same proportion to each other, then the proportion of one of these to 1000 being known, there will also be known the proportion of the other to the same 1000.

Corol. 1. Hence from the 15 proportions mentioned in prop. 18, will be known 120 others below 1000, to the same 1000.

For so many are the proportions, equal to some one or other of the said 15, that are among the other integer numbers which are less than 1000.

Corol. 2. Hence arises the method of treating the Rule-of-Three, when 1000 is one of the given terms.

For this is effected by adding to, or subtracting from, each other, the measures of the two proportions of 1000 to each of the other two given numbers, according as 1000 is, or is not, the first term in the Rule-of-Three.

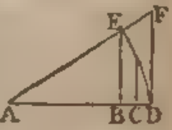
20 *Prop*. When four numbers are proportional, the first to the second as the third to the fourth, and the proportions of 1000 to each of the three former are known, there will also be known the proportion of 1000 to the fourth number.

Corol. 1. By this means other chiliads are added to the former.

Corol. 2. Hence arises the method of performing the Rule-of-Three, when 1000 is not one of the terms. Namely, from the sum of the measures of the proportions of 1000 to the second and third, take that of 1000 to the first, and the remainder is the measure of the proportion of 1000 to the fourth term.

Definition. The measure of the proportion between 1000 and any less number as before described, and expressed by a number, is set opposite to that less number in the chiliad, and is called its LOGARITHM, that is, the number (ἀριθμος) indicating the proportion (λογον) which 1000 bears to that number, to which the logarithm is annexed.

21 *Prop.* If the first or greatest number be made the radius of a circle, or sinus totus; every less number, considered as the cosine of some arc, has a logarithm greater than the versed sine of that arc, but less than the difference between the radius and secant of the arc; except only in the term next after the radius, or greatest term, the logarithm of which, by the hypothesis, is made equal to the versed sine.



That is, if CD be made the logarithm of AC, or the measure of the proportion of AC to AD, then the measure of the proportion of AB to AD, that is the logarithm of AB, will be greater than BD, but less than EF. And this is the same as Napier's first rule in page 45.

22 *Prop.* The same things being supposed; the sum of the versed sine and excess of the secant over the radius, is greater than double the logarithm of the cosine of an arc.

Corol. The log cosine is less than the arithmetical mean between the versed sine and the excess of the secant.

Precept 1. Any sine being found in the canon of sines, and its defect below radius to the excess of the secant above radius, then shall the logarithm of the sine be less than half that sum, but greater than the said defect or coversed sine.

Let there be the sine 99970 1490 of an arc:
Its defect below radius is 29 8510 the covers. and less than the log. sine:
Add the excess of the secant 29 8599

Sum 59 7109
its half or 29.8555 greater than the logarithm.
Therefore the log. is between 29 8510
and 29.8555

Precept 2. The logarithm of the sine being found, you will also find nearly the logarithm of the round or integer number, which is next less than the sine with a fraction, by adding that fractional excess to the logarithm of the said sine.

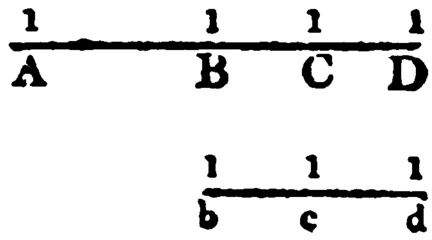
Thus, the logarithm of the sine 99970 149 is found to be about 29.854; if now the logarithm of the round number 99970 000 be required, add 149, the fractional part of the sine, to its logarithm, observing the point, thus,

29.854
149

the sum 30.003 is the log. of the round number 99970.000 nearly.

23 *Prop.* Of three equidifferent quantities, the measure of the proportion between the two greater terms, with the measure of the

proportion between the two less terms, will constitute a proportion, which will be greater than the proportion of the two greater terms, but less than the proportion of the two least.



Thus if AB, AC, AD, be three quantities, having the equal differences BC, CD; and if the measure of the proportion of AD, AC be cd, and that of AC, AB be bc; then the proportion of cd to cb will be greater than the proportion of AC to AD, but less than the proportion of AB to AC.

24 *Prop.* The said proportion between the two measures is less than half the proportion between the extreme terms. That is, the proportion between bc, cd, is less than half the proportion between AB, AD.

Corol. Since therefore the arithmetical mean divides the proportion into unequal parts, of which the one is greater, and the other less, than half the whole; if it be inquired what proportion is between these proportions, the answer is, that it is a little less than the said half.

An Example of finding nearly the limits, greater and less, to the measure of any proposed proportion.

It being known that the measure of the proportion between 1000 and 900 is 10536.05, required the measure of the proportion 900 to 800, where the terms 1000, 900, 800, have equal differences. Therefore as 9 to 10, so 10536.05 to 11706.72, which is less than 11778.30 the measure of the proportion 9 to 8. Again, as the mean proportional between 8 and 10 (which is 8.9442719) is to 10, so 10536.05 to 11779.66, which is greater than the measure of the proportion between 9 and 8.

Axiom. Every number denotes an expressible quantity.

25 *Prop.* If the 1000 numbers differing by 1, follow one another in the natural order; and there be taken any two adjacent numbers, as the terms of some proportion; the measure of this proportion will be to the measure of the proportion between the two greatest terms of the chiliad, in a proportion greater than that which the greatest term 1000 bears to the greater of the two terms first taken, but less than the proportion of 1000 to the less of the said two selected terms.

So, of the 1000 numbers, taking any two successive terms, as 501 and 500, the logarithm of the former being 69114.92, and of the latter 69314.72, the difference of which is 199.80. Therefore, by the definition, the measure of the proportion between 501 and 500 is 199.80. In like manner, because the logarithm of the greatest term 1000 is 0, and of the next 999 is 100.05, the difference of these logarithms, and the measure of the proportion between 1000 and 999, is 100.05. Couple now the greatest term 1000 with each of the selected terms 501 and 500; couple also the measure 199.80 with the measure 100.05; so shall the proportion between 199.80 and 100.05, be greater than the proportion between 1000 and 501, but less than the proportion between 1000 and 500.

Corol. 1. Any number below the first 1000 being proposed, as also its logarithm, the differences of any logarithms antecedent to that

proposed, towards the beginning of the chiliad, are to the first logarithm (viz. that which is assigned to 999) in a greater proportion than 1000 to the number proposed; but of those which follow towards the last logarithm, they are to the same in a less proportion.

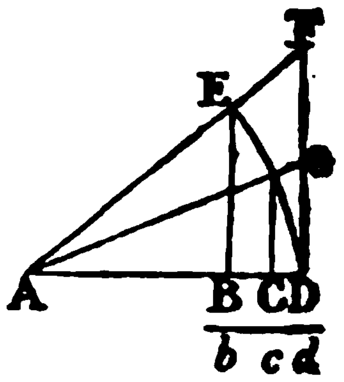
Corol. 2. By this means, the places of the chiliad may easily be filled up, which have not yet had logarithms adapted to them by the former propositions.

26 *Prop.* The difference of two logarithms, adapted to two adjacent numbers, is to the difference of these numbers, in a proportion greater than 1000 bears to the greater of those numbers, but less than that of 1000 to the less of the two numbers.

This 26th prop. is the same as Napier's second rule, at page 45.

27 *Prop.* Having given two adjacent numbers, of the 1000 natural numbers, with their logarithmic indices, or the measures of the proportions which those absolute or round numbers constitute with 1000, the greatest; the increments, or differences, of these logarithms, will be to the logarithm of the small element of the proportions, as the secants of the arcs whose cosines are the two absolute numbers, is to the greatest number, or the radius of the circle; so that, however, of the said two secants, the less will have to the radius a less proportion than the proposed difference has to the first of all, but the greater will have a greater proportion, and so also will the mean proportional between the said secants have a greater proportion.

Thus if BC, CD be equal, also b d the logarithm of A B, and c d the logarithm of A C; then the proportion of b c to c d will be greater than the proportion of A G to A D, but less than that of A F to A D, and also less than that of the mean proportional between A F and A G to A D.



Corol. 1. The same obtains also when the two terms differ, not only by the unit of the small element, but by another unit, which may be ten fold, a hundred fold, or a thousand fold of that.

Corol. 2. Hence the differences will be obtained sufficiently exact, especially when the absolute numbers are pretty large, by taking the arithmetical mean between two small secants, or (if you will be at the labour) by taking the geometrical mean between two larger secants, and then by continually adding the differences, the logarithms will be produced.

Corol. 3. *Precept.* Divide the radius by each term of the assigned proportion, and the arithmetical mean (or still nearer the geometrical mean) between the quotients, will be the required increment; which being added to the logarithm of the greater term, will give the logarithm of the less term.

Example.

Let there be given the logarithm of 700, viz. 35667.4948, to find the log. to 699.
Here radius divided by 700 gives 1428571 &c.
and divided by 699 gives 1430672 &c.
the arithmetic. mean is 142.962
which added to 35667.4948

gives the logarithm to 699 35810.4568

Corol. 4. *Precept* for the logarithms of sines.

The increment between the logarithms of two sines, is thus found: find the geometrical mean between the cosecants, and divide it by the difference of the sines, the quotient will be the difference of the logarithms.

Example.

0° 1′ sine 2909	cosec. 343774682	The quotient 80000 exceeds the required increment of the logarithms, because the secants are here so large.
0 2 sine 5818	cosec. 171887319	
dif. 2909	geom. mean 2428 nearly.	

Appendix. Nearly in the same manner it may be shown, that the second differences are in the duplicate proportion of the first, and the third in the duplicate of the second. Thus, for instance, in the beginning of the logarithms, the first difference is 100.00000, viz. equal to the difference of the numbers 100000.00000 and 99900.00000; the second or difference of the differences, 10000; the third 20. Again, after arriving at the number 50000.00000, the logarithms have for a difference 200.00000, which is to the first difference, as the number 100000.00000 to 50000.00000; but the second difference is 40000, in which 10000 is contained 4 times; and the third 328, in which 20 is contained 16 times. But since in treating of new matters we labour under the want of proper words, therefore, lest we should become too obscure, the demonstration is omitted entried.

28 *Prop.* No number expresses exactly the measure of the proportion between two of the 1000 numbers, constituted by the foregoing method.

29 *Prop.* If the measures of all proportions be expressed by numbers or logarithms; all proportions will not have assigned to them their due portion of measure, to the utmost accuracy.

30 *Prop.* If to the number 1000, the greatest of the chiliad, be referred others that are greater than it, and the logarithm of 1000 be made 0, the logarithms belonging to those greater numbers will be negative.

This concludes the first or scientific part of the work, the principles of which Kepler applies, in the second part, to the actual construction of the first 1000 logarithms, which construction is pretty minutely described. This part is entitled *A very compendious Method of constructing the Chiliad of Logarithms;* and it is not improperly so called, the method being very concise and easy. The fundamental principles are briefly these: That at the beginning of the logarithms, their in-

crements or differences are equal to those of the natural numbers: that the natural numbers may be considered as the decreasing cosines of increasing arcs; and that the secants of those arcs at the beginning have the same differences as the cosines, and therefore the same differences as the logarithms. Then, since the secants are the reciprocals of the cosines, by these principles and the third corollary to the 27th proposition, he establishes the following method of constituting the 100 first or smallest logarithms to the 100 largest numbers, 1000, 999, 998, 997, &c, to 900. viz. Divide the radius 1000, increased with seven ciphers, by each of these numbers separately, disposing the quotients in a table, and they will be the secants of those arcs which have the divisors for their cosines; continuing the division to the 8th figure, as it is in that place only that the arithmetical and geometrical means differ. Then by adding successively the arithmetical means between every two successive secants, the sums will be the series of logarithms. Or by adding continually every two secants, the successive sums will be the series of the double logarithms.

Besides these 100 logarithms, thus constructed, he constitutes two others by continual bisection, or extractions of the square root, after the manner described in the second postulate. And first he finds the logarithm which measures the proportion between 100000.00 and 97656.25, which latter term is the third proportional to 1024 and 1000, each with two ciphers; and this is effected by means of twenty-four continual extractions of the square root, determining the greatest term of each of twenty-four classes of mean proportionals; then the difference between the greatest of these means and the first or whole number 1000, with ciphers, being as often doubled, there arises 2371.6526 for the logarithm sought, which made negative is the logarithm of 1024. Secondly, the like process is repeated for the proportion between the numbers 1000 and 500, from which arises 69314.7193 for the logarithm of 500; which he also calls the logarithm of duplication, being the measure of the proportion of 2 to 1.

Then from the foregoing he derives all the other logarithms in the chiliad, beginning with those of the prime numbers 1, 2, 3, 5, 7, &c, in the first 100. And first, since 1024, 512, 256, 128, 64, 32, 16, 8, 4, 2, 1, are all in the continued proportion of 1000 to 500, therefore the proportion of 1024 to 1 is decuple of the proportion of 1000 to 500, and consequently the logarithm of 1 would be decuple of the logarithm of 500, if 0 were taken as the logarithm of 1024; but since the logarithm of 1024 is applied negatively, the logarithm of 1 must be diminished by as much: diminishing therefore 10 times the logarithm of 500, which is 693147.1928, by 2371.6526, the remainder 690775.5422 is the logarithm of 1, or of 100.00, what is set down in the table.

Nos.	Logarithms.
100	230258.5141
10	460517.0282
1	690775.5429
.1	921034.0563
.01	1151292.5708
.001	1381551.0844
.0001	1611809.5985

And because 1, 10, 100, 1000, are continued proportionals, therefore the proportion of 1000 to 1 is triple of the proportion of 1000 to 100, and consequently $\frac{1}{3}$ of the logarithm of 1 is to be put for the logarithm of 100, viz. 230258.5141, and this is also the logarithm of decuplication, or of the pro-

portion of 10 to 1. And hence, multiplying this logarithm of 100 successively by 2, 3, 4, 5, 6, and 7, there arise the logarithms to the numbers in the decuple proportion, as in the margin.

Also if the logarithm of duplication, or of the proportion of 2 to 1, be taken from the logarithm of 1, there will remain the logarithm of 2; and from the logarithm of 2 taking the logarithm of 10, there remains the logarithm of the proportion of 5 to 1; which taken from the logarithm of 1, there remains the logarithm of 5. See the margin.

Log. of 1	690775.5422
of 2 to 1	69314.7193
log. of 2	621460.8229
log. of 10	460517.0281
of 5 to 1	160943.7948
log. of 5	529831.7474

For the logarithms of other prime numbers, he has recourse to those of some of the first or greatest century of numbers, before found, viz. of 999, 998, 997, &c. And first, taking 960, whose logarithm is 4082.2001; then by adding to this logarithm the logarithm of duplication, there will arise the several logarithms of all those numbers, which are in duplicate proportion continued from 960, namely 480, 240, 120, 60, 30, 15. Hence, the logarithm of 30 taken from the logarithm of 10, leaves the logarithm of the proportion of 3 to 1; which taken from the logarithm of 1, leaves the logarithm of 3, viz. 580914.3106. And the double of this diminished by the logarithm of 1, gives 471053.0790 for the logarithm of 9.

Next, from the logarithm of 990, or $9 \times 10 \times 11$, which is 1005.0331, he finds the logarithm of 11, namely, subtract the sum of the logarithms of 9 and 10 from the sum of the logarithm of 990 and double the logarithm of 1, there remains 450986.0106 the logarithm of 11.

Again, from the logarithm of 980, or $2 \times 10 \times 7 \times 7$, which is 2020.2711, he finds 496184.5228 for the logarithm of 7.

And from 5129.3303 the logarithm of 950, or $5 \times 10 \times 19$, he finds 396331.6392 for the logarithm of 19.

In like manner the logarithm

to 998 or $4 \times 13 \times 19$, gives the logarithm of 13;
to 969 or $3 \times 17 \times 19$, gives the logarithm of 17;
to 986 or $2 \times 17 \times 29$, gives the logarithm of 29;
to 966 or $6 \times 7 \times 23$, gives the logarithm of 23;
to 930 or $3 \times 10 \times 31$, gives the logarithm of 31.

And so on for all the primes below 100, and for many of the primes in the other centuries up to 900. After which, he directs to find the logarithms of all numbers composed of these, by the proper addition and subtraction of their logarithms, namely, in finding the logarithm of the product of two numbers, from the sum of the logarithms of the two factors take the logarithm of 1, the remainder is the logarithm of the product. In this way he shows that the logarithms of all numbers under 500 may be derived, except those of the following 36 numbers, namely, 127, 149, 167, 173, 179, 211, 223, 251, 257, 263, 269, 271, 277, 281, 283, 293, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397, 401, 409, 419, 421, 431, 433, 439, 443, 449. Also, besides the composite numbers between 500 and 900, made up of the products of some numbers whose logarithms have been before determined, there will be 59 primes not composed

of them; which, with the 36 above mentioned, make 95 numbers in all, not composed of the products of any before them, and the logarithms of which he directs to be derived in this manner; namely, by considering the differences of the logarithms of the numbers interspersed among them: then by that method by which were constituted the differences of the logarithms of the smallest 100 numbers in a continued series, we are to proceed here in the discontinued series, that is, by prop. 27, corol. 3, and especially by the appendix to it, if it be rightly used, whence those differences will be very easily supplied.

This closes the second part, or the actual construction of the logarithms; after which follows the table itself, which has been before described, pa. 32. Before dismissing Kepler's work, however, it may not be improper in this place to take notice of an erroneous property laid down by him in the appendix to the 27th prop. just now referred to; both because it is an error in principle, tending to vitiate the practice, and because it serves to show that Kepler was unacquainted with the true nature of the orders of differences of the logarithms, notwithstanding what he says above with respect to the construction of them by means of their several orders of differences, and that consequently he has no legal claim to any share in the discovery of the differential method, known at that time to Briggs, and it would seem to him alone, it being published in his logarithms in the same year, 1624, as Kepler's book, together with the true nature of the logarithmic orders of differences, as we shall presently see in the following account of his works. Now this error of Kepler's here alluded to, is in that expression where he says the third differences are in the *duplicate* ratio of the second differences, like as the second differences are in the duplicate ratio of the first; or, in other words, that the third differences are as the *squares* of the second differences, as well as the second differences as the squares of the first; or that the third differences are as the *fourth powers* of the first differences. Whereas in truth the third differences are only as the *cubes* of the first differences. Kepler seems to have been led into this error by a mistake in his numbers, viz. when he says in that appendix, that the *third difference is* 328, *in which* 20 *is contained* 16 *times;* for when the numbers are accurately computed, the third difference comes out only 161, in which therefore 20 is contained only 8 times, which is the cube of 2, the number of times the one first difference contains the other. It would hence seem that Kepler had hastily drawn the above erroneous principle from this one numerical example, or little more, false as it is: for had he made the trial in many instances, though erroneously computed, they could not easily have been so uniformly so, as to afford the same false conclusion. And therefore from hence, and what he says at the conclusion of that appendix, it may be inferred, that he either never attempted the demonstration of the property in question, or else that he found himself embarrassed with it, and unable to accomplish it, and therefore dispatched it in the ambiguous manner in which it appears.

But it may easily be shown, not only that the third differences of the

logarithms at different places, are as the cubes of the first differences; but, in general, that the numbers in any one and the same order of differences, at different places, are as that power of the numbers in the first differences, whose index is the same as that of the order: or that the second, third, fourth, &c, differences, will be as the second, third, fourth, &c, powers of the first differences. For the several orders of differences, when the absolute numbers differ by indefinitely small parts, are as the several orders of fluxions of the logarithms; but if x be any number, then $\frac{m\dot{x}}{x}$ is the fluxion of the logarithm of x, to the modulus m, and the second fluxion, or the fluxion of this fluxion, is $-\frac{m\dot{x}^2}{x^2}$, since $\dot{x}$ is constant: and the third, fourth, &c, fluxions are $\frac{2m\dot{x}^3}{x^3}$, $-\frac{2.3m\dot{x}^4}{x^4}$, &c; that is, the first, second, third, fourth, fifth, sixth, &c, orders of fluxions, are equal to the modulus m multiplied into each of these terms,

$$\frac{\dot{x}}{x}, -\frac{1\dot{x}^2}{x^2}, \frac{1.2\dot{x}^3}{x^3}, -\frac{1.2.3\dot{x}^4}{x^4}, \frac{1.2.3.4\dot{x}^5}{x^5}, -\frac{1.2.3.4.5\dot{x}^6}{x^6}, \text{ \&c;}$$

where it is evident, that the fluxion of any order is as that power of the first fluxion, whose index is the same as the number of the order. And these quantities would actually be the several terms of the differences themselves, if the differences of the numbers were indefinitely small. But they vary the more from them, as the differences of the absolute numbers differ from $\dot{x}$, or as the said constant numerical difference 1 approaches towards the value of x the number itself. However, on the whole, the several orders vary proportionably, so as still sensibly to preserve the same analogy, namely, that two nth differences are in proportion as the nth powers of their respective first differences.

Of Briggs's Construction of his Logarithms.

Nearly according to the methods described in page 48, Mr. Briggs constructed the logarithms of the prime numbers, as appears from his relation of this business in the *Arithmetica Logarithmica*, printed in 1624, where he details, in an ample manner, the whole construction and use of his logarithms. The work is divided into 32 chapters or sections. In the first of these, logarithms in a general sense are defined, and some properties of them illustrated. In the second chapter he remarks, that it is most convenient to make 0 the logarithm of 1; and on that supposition he exemplifies these following properties, namely, that the logarithms of all numbers are either the indices of powers, or proportional to them; that the sum of the logarithms of two or more factors, is the logarithm of their product; and that the difference of the logarithms of two numbers, is the logarithm of their quotient. In the third section, he states the other assumption which

is necessary to limit his system of logarithms, namely, making 1 the logarithm of 10, as that which produces the most convenient form of logarithms: He hence also takes occasion to show that the powers of 10, namely, 100, 1000, &c, are the only numbers which can have rational logarithms. The fourth section treats of the characteristic; by which name he distinguishes the integral, or first part, of a logarithm towards the left hand, which expresses 1 less than the number of integer places or figures in the number belonging to that logarithm, or how far the first figure of this number is removed from the place of units; namely, that 0 is the characteristic of the logarithms of all numbers from 1 to 10; and 1 the characteristic of all those from 10 to 100; and 2 that of those from 100 to 1000; and so on.

He begins the fifth chapter with remarking, that his logarithms may chiefly be constructed by the two methods which were mentioned by Napier, as above related, and for the sake of which he here premises several *lemmata*, concerning the powers of numbers and their indices, and how many places of figures are in the products of numbers, observing that the product of two numbers will consist of as many figures as there are in both factors, unless perhaps the product of the first figures in each factor be expressed by one figure only, which often happens, and then commonly there will be 1 figure in the product less than in the two factors; as also that, of any two of the terms in a series of geometricals, the results will be equal by raising each term to the power denoted by the index of the other; or any number raised to the power denoted by the logarithm of the other, will be equal to this latter number raised to the power denoted by the logarithm of the former; and consequently if the one number be 10, whose logarithm is one with any number of ciphers, then any number raised to the power whose index is 1000 &c, or the logarithm of 10, will be equal to 10 raised to the power whose index is the logarithm of that number; that is, the logarithm of any number in this scale, where 1 is the logarithm of 10, is the index of that power of 10 which is equal to the given number. But the index of any integral power of 10, is 1 less than the number of places in that power, consequently the logarithm of any other number, which is no integral power of 10, is not quite one less than the number of places in that power of the given number whose index is 1000 &c, or the logarithm of 10.

Find therefore the 10th, or 100th, or 1000th, &c, power of any number, as suppose 2, with the number of figures in such power; then shall that number of figures always exceed the logarithm of 2, though the excess will be constantly less than 1.

Powers of 2	Indices.	No. of places or logs.
2	1	1
4	2	1
16	4	2
256	8	3
1024	10	4 log. of 2
10486	20	7 log of 4
10995	40	13 log of 16
12089	80	25 log of 256
12676	100	31 log. of 2
16069	200	61 log of 4
25823	400	121 log 16
66680	800	241 log 256
10715	1000	302 log. 2
11481	2000	603 log. 4
13182	4000	1205 log. 16
17377	8000	2409 log 256
19950	10000	3011 log. 2
39803	20000	6021 log 4
15843	40000	12042 log. 16
25099	80000	24083 log. 256
99900	100000	30103 log 2
99801	200000	60206 log. 4
99601	400000	120412 &c.
99204	800000	240824
99006	1000000	301030
98023	2000000	602060
96085	4000000	1204120
92323	8000000	2408240
90498	10000000	3010300
81899	20000000	6020600
67075	40000000	12041200
44990	80000000	24082400
36846	100000000	30103000
13577	200000000	60206000
18433	400000000	120411999
33977	800000000	240823997
46129	1000000000	301029996

An example of this process is here given in the margin; where the 1st column contains the several powers of 2, the 2d their corresponding indices, and the 3d contains the number of places in the powers in the first column; and of these numbers in the third column, such as are on the lines of those indices that consist of 1 with ciphers, are continual approximations to the logarithm of 2, being always too great by less than 1 in the last figure, that logarithm being 30102999566398 &c.

And here, since the exact powers of 2 are not required, but only the number of figures they consist of, as shown by the third column, only a few of the first figures of the powers in the first column are retained, those being sufficient to determine the number of places in them; and the multiplications in raising these powers are performed in a contracted way, so as to have the fifth or last figure in them true to the nearest unit. Indeed these multiplications might be performed in the same manner, retaining only the first three figures, and those to the nearest unit in the third place; which would make this a very easy way indeed of finding the logarithms of a few prime numbers.

It may also be remarked, that those several powers, whose indices are 1 with ciphers, are raised by thrice squaring from the former powers, and multiplying the first by the third of these squares; making also the corresponding doublings and additions of their indices: thus, the square of 2 is 4, and the square of 4 is 16, the square of 16 is 256, and 256 multiplied by 4 is 1024; in like manner, the double of 1 is 2, the double of 2 is 4, the double of 4 is 8, and 8 added to 2 makes 10. And the same for all the following powers and indices. The numbers in the third column, which show how many places are in the corresponding powers in the first column, are produced in the very same way as those in the second column, namely, by three

duplications and one addition; only observing to subtract 1 when the product of the first figures are expressed by one figure, or when the first figures exceed those of the number or power next above them. It may further be observed, that, like as the first number in each quaternion, or space of four lines or numbers, in the third column, approximates to the logarithm of 2, the first number in the first quaternion of the first column; so the second, third, and fourth terms of each quaternion in the third column, approximate to the logarithm of 4, 16, and 256, the second, third, and fourth numbers in the first quaternion in the first column. And moreover, by cutting off one, two, three, &c, figures, as the index or integral part, from the said logarithms of 2, 4, 16, and 256, the first, second, third, and fourth numbers in the first quaternion of the first column, the remaining figures will be the decimal part of the logarithms of the corresponding first, second, third, and fourth numbers in the following second, third, fourth, &c, quaternions: the reason of which is, that any number of any quaternion in the first column, is the tenth power of the corresponding term in the next preceding quaternion. So that the third column contains the logarithms of all the numbers in the first column: a property which if Dr. Newton had been aware of, he could not well have committed such gross mistakes as are found in a table of his similar to that above given, in which most of the numbers in the latter quaternions are totally erroneous; and his confused and imperfect account of this method would induce one to believe that he did not well understand it.

In the 6th chapter our illustrious author begins to treat of the other general method of finding the logarithms of prime numbers, which he thinks an easier way than the former, at least when the logarithm is required to a great many places of figures. This method consists in taking a great number of continued geometrical means between 1 and the given number, whose logarithm is required; that is, first extracting the square root of the given number, then the root of the first root, the root of the second root, the root of the third root, and so on till the last root shall exceed 1 by a very small decimal, greater or less according to the intended number of places to be in the logarithm sought: then finding the logarithm of this small number, by methods described below, he doubles it as often as he made extractions of the square root, or, which is the same thing, he multiplies it by such power of 2 as is denoted by the said number of extractions, and the result is the required logarithm of the given number; as is evident from the nature of logarithms. The rule to know how far to continue this extraction of roots is, that the number of decimal places in the last root be double the number of true places required to be found in the logarithm, and that the first half of them be ciphers; the integer being 1: the reason of which is, that then the significant figures in the decimal, after the ciphers, are directly proportional to those in the corresponding logarithms; such figures in the natural number being the half of those in the next preceding number, like as the logarithm of the last number is the half of the preceding logarithm. Therefore any one such small number, with

its logarithm, being once found by the continual extractions of square roots out of a given number, as 10, and corresponding bisections of its given logarithm 1; the logarithm for any other such small number, derived by like continual extractions from another given number, whose logarithm is sought, will be found by one single proportion: which logarithm is then to be doubled according to the number of extractions, or multiplied at once by the like power of 2, for the logarithm of the number proposed. To find the first small number and its logarithm, our author begins with the number 10 and its logarithm 1, and extracts continually the root of the last number and bisects its logarithm, as here registered in the margin, but to far more places of figures, till he arrives at the 53d and 54th roots, with their annexed logarithms, as here below:

	10, given no.	1, its log.
1	3·162277 &c.	0·5
2	1·778279	0·25
3	1·333521	0·125
4	1·154781	0·0625
5	1·074607	0·03125
	&c.	&c.

	Numbers.	Logarithms.
53	1·00000,00000,00000,25563,82986,40064,70	0·00000,00000,00000,11102,23024,62515,65404
54	1·00000,00000,00000,12781,91493,20032,35	0·00000,00000,00000,05551,11512,31257,82702

where the decimals in the natural numbers are to each other in the ratio of the logarithms, namely, in the ratio of 2 to 1: and therefore any other such small number being found, by continual extraction or otherwise, it will then be as 12781, &c, is to 5551 &c, so is that other small decimal, to the corresponding significant figures of its logarithm. But as every repetition of this proportion requires both a very long multiplication and division, he reduces this constant ratio to another equivalent ratio whose antecedent is 1, by which all the divisions are saved: thus,

as 12781 &c : 5551 &c : : 1000 &c : 43429448190325 1804,
that is, the logarithm of 1·00000,00000,00000,1
is 0·00000,00000,00000,04342,94481,90325,1804;

and therefore this last number being multiplied by any such small decimal, found as above by continual extraction, the product will be the corresponding logarithm of such last root.

But as the extraction of so many roots is a very troublesome operation, our author devises some ingenious contrivances to abridge that labour. And first, in the 7th chapter, by the following device, to have fewer and easier extractions to perform: namely, raising the powers from any given prime number, whose logarithm is sought, till a power of it be found such that its first figure on the left hand is 1, and the next to it either one or more ciphers; then, having divided this power by 1 with as many ciphers as it has figures after the first, or supposing all after the first to be decimals, the continual roots from this power are extracted till the decimal become sufficiently small, as when the first fifteen places are ciphers; and then by multiplying the decimal by 43429 &c, he has the logarithm of this last root; which logarithm multiplied by the like power of the number 2,

gives the logarithm of the first number from which the extraction was begun: to this logarithm prefixing a 1, or 2, or 3, &c, according as this number was found by dividing the power of the given prime number by 10, or 100, or 1000, &c; and lastly, dividing the result by the index of that power, the quotient will be the required logarithm of the given prime number. Thus, to find the logarithm of 2: it is first raised to the 10th power, as in the margin, before the first figures come to be 10; then, dividing by 1000, or cutting off for decimals all the figures after the first or 1, the root is continually extracted out of the quotient 1,024, till the 47th extraction, which gives 1,00000,00000,00000,16851,60570,53949,77; the decimal part of which multiplied by 43429&c, gives 0,00000,00000,00000,07318,55936,90623,9368 for its logarithm; and this being continually doubled for 47 times, gives the logarithms of all the roots up to the first number: or being at once multiplied by the 47th power of 2, viz. 140737488355328, which is raised as in the margin, it gives 0,01029,99566,39811,95265,27744 for the logarithm of the number 1,024, true to 17 or 18 decimals: to this prefix 3, so shall 3,0102 &c be the logarithm of 1024: and lastly, because 2 is the tenth root of 1024, divide by 10, so shall 0,30102,99956,63981,1952 be the logarithm required to the given number 2.

2	1
4	2
8	3
16	4
32	5
64	6
128	7
256	8
512	9
1024	10

2	1
4	2
8	3
16	4
32	5
64	6
128	7
256	8
512	9
1024	10
1048576	20
1073741824	30
1099511627776	40
140737488355328	47

The logarithms of 1, 2, and 10 being now known; it is remarked that the logarithm of 5 becomes known; for since $10 \div 2$ is $= 5$, therefore log. 10 − log. 2 = log. 5, which is 0,69897,00043,36018,8058; and that from the multiplications and divisions of these three, 2, 5, 10, with the corresponding additions and subtractions of their logarithms, a multitude of other numbers and their logarithms are produced; so, from the powers of 2 are obtained 4, 8, 16, 32, 64, &c; from the powers of 5, these, 25, 125, 625, 3125, &c; also the powers of 5 by those of 10 give 250, 1250, 6250, &c; and the powers of 2 by those of 10, give 20, 200, 2000, &c; 40, 400, 80, 800, &c; likewise by division are obtained $2\frac{1}{2}$, $1\frac{1}{4}$, $12\frac{1}{2}$, $6\frac{1}{4}$, $1\frac{3}{5}$, $3\frac{1}{5}$, $6\frac{2}{5}$, &c.

Briggs then observes, that the logarithm of 3, the next prime number, will be best derived from that of 6, in this manner: 6 raised to the 9th power becomes 10077696, which divided by 10000000, gives 1,0077696, and the root from this continually extracted till the 46th, is 1,00000,00000,00000,10998,59345,88155,71866;
the decimal part of which multiplied by 43429&c, gives 0,00000,00000,00000,04776,62844,78608,0304 for its logarithm; and this 46 times doubled, or multiplied by the 46th power of 2, gives 0,00336,12534,52792,69 for the logarithm of 1,0077696: to which adding 7, the logarithm of the divisor 10000000, and dividing by 9, the index of the power of 6, there results 0,77815,12503,83643,63

for the logarithm of 6; from which subtracting the logarithm of 2, there remains 0,47712,12547,19662,44 for the logarithm of 3.

In the 8th chapter our ingenious author describes an original and easy method of constructing, by means of differences, the continual mean proportionals which were before found by the extraction of roots. And this, with the other methods of generating logarithms by differences, in this book as well as in his *Trigonometria Britannica*, are I believe the first instances that are to be found of making such use of differences, and show that he was the inventor of what may be called the *Differential Method*. He seems to have discovered this method in the following manner: having observed that these continual means between 1 and any number proposed, found by the continual extraction of roots, approach always nearer and nearer to the halves of each preceding root, as is visible when they are placed together under each other; and indeed it is found that as many of the significant figures of each decimal part, as there are ciphers between them and the integer 1, agree with the half of those above them; I say, having observed this evident approximation, he subtracted each of these decimal parts, which he called A or the first differences, from half the next preceding one, and by comparing together the remainders or second differences, called B, he found that the succeeding were always nearly equal to $\frac{1}{4}$ of the next preceding ones; then taking the difference between each second difference and $\frac{1}{4}$ of the preceding one, he found that these third differences, called C, were nearly in the continual ratio of 8 to 1; again taking the difference between each C and $\frac{1}{8}$ of the next preceding, he found that these fourth differences, called D, were nearly in the continual ratio of 16 to 1; and so on, the 5th (E), 6th (F), &c, differences, being nearly in the continual ratio of 32 to 1, of 64 to 1, &c.

These plain observations being made, they very naturally and clearly suggested to him the notion and method of constructing all the remaining numbers from the differences of a few of the first, found by extracting the roots in the usual way. This will evidently appear from the annexed specimen of a few of the first numbers in the last example for finding the logarithm of 6; where, after the 9th number the rest are supposed to be constructed from the preceding differences of each, as here shown in the 10th and 11th. And it is evident, that in proceeding, the trouble will become always less and less, the differences gradually vanishing, till at last only the first differences remain; and that generally each less difference is shorter than the next greater, by as many places as there are ciphers at the beginning of the decimal in the number to be generated from the differences.

	1,00776,96	
1	1,00387,72833,36962,45663,84655,1	
2	1,00193,67661,36916,61675,87622,9	
3	1,00096,79146,[illegible]0099,01728,89072,0	
4	1,00048,38402,68646,62985,49253,5	A
5	1,00024,18968,78824,68563,8[illegible]674,7	A
	24,19201,34433,31192,74626,7	½A
	292,55598,62928,94754,0	B
6	1,00012,09351,26347,13459,45919,4	A
	12,09454,39412,34281,00436,3	½A
	73,13015,20922,46516,9	B
	73,13699,65732,23418,5	¼B
	854,44907,76921,5	C
7	1,00006,04672,35015,30968,01600,5	A
	6,04690,63198,56729,71959,7	½A
	18,28143,25761,70359,2	B
	18,28253,80205,61629,2	¼B
	110,34448,92270,0	C
	110,35613,723[illegible]5,2	⅛C
	1169,80845,2	D
8	1,00003,02331,00505,65775,96479,4	A
	3,02336,17527,65484,00800,2	½A
	4,57021,99708,04320,8	B
	4,57035,95440,42589,8	¼B
	13,81782,38269,0	C
	13,81805,49909,7	⅛C
	73,10639,7	D
	73,11302,8	$\frac{1}{16}$D
	663,1	E
9	1,00001,51164,65999,03672,95046,8	A
	1,51165,80252,82587,98239,7	½A
	1,14258,77215,08190,9	B
	Hitherto the 1,14255,49927,01080,2	¼B
	smaller differences 1,72711,27889,3	C
	are found by sub- 1,72716,34783,6	⅛C
	tracting the larger from 4,36894,3	D
	the parts of the like pre- 4,36915,0	$\frac{1}{16}$D
	ceding ones 20,7	E
	20,7	$\frac{1}{32}$E
	Here the greater differences 65	$\frac{1}{32}$E
	remain after subtracting 28555,89	$\frac{1}{16}$D
	the smaller from the parts 28555,24	D
	of the difference of 21598,99736,16	⅛C
	the next preceding 21588,71150,92	C
	number. 28563,44303,75797,72	¼B
	28563,22715,04616,80	B
	75582,32999,52836,47524,40	½A
10	1,00000,75582,04436,30121,42907,60	A
	2	$\frac{1}{32}$E
	1784,70	$\frac{1}{16}$D
	1784,69	D
	2698,58897,62	⅛C
	2698,57112,94	C
	7140,80078,76154,20	¼B
	7140,77980,19041,26	B
	37791,02218,15060,71453,80	½A
11	1,00000,37790,93077,78040,[illegible]2412,54	A

He then concludes this chapter with an ingenious, but not obvious, method of finding the differences B,C,D,E, &c. belonging to any number, as suppose the 9th, from that number itself, independent of any of the preceding 8th, 7th, 6th, 5th, &c, and it is this: raise the decimal A to the 2d, 3d, 4th, 5th, &c powers; then will the 2d (B), 3d (C), 4th (D), &c differences, be as here below, viz.

$B = \frac{1}{2}A^2,$
$C = . \frac{1}{2}A^3 + \frac{1}{8}A^4,$
$D = . . \frac{7}{8}A^4 + \frac{7}{8}A^5 + \frac{7}{16}A^6 + \frac{1}{8}A^7 + \frac{1}{64}A^8,$
$E = . . . 2\frac{5}{8}A^5 + 7A^6 + 10\frac{1}{16}A^7 + 12\frac{69}{128}A^8 + 11\frac{31}{64}A^9 + 7\frac{105}{128}A^{10},$
$F = ... 13\frac{9}{16}A^6 + 81\frac{3}{8}A^7 + 296\frac{87}{128}A^8 + 834\frac{43}{128}A^9 + 1953\frac{283}{512}A^{10}$ &c.
$G = ... 122\frac{1}{16}A^7 + 1510\frac{67}{128}A^8 + 11475\frac{73}{128}A^9 + 68372\frac{79}{1024}A^{10}$ &c.
$H = ... 1937\frac{95}{128}A^8 + 47151\frac{93}{128}A^9 + 706845\frac{4621}{8192}A^{10}$ &c.
$I = ... 54902\frac{89}{128}A^9 + 2558465\frac{3157}{32768}A^{10}$ &c.
$K = ... 2605527A^{10}$ &c.
&c.

Thus in the 9th number of the foregoing example, omitting the ciphers at the beginning of the decimals, we have

A = 1,51164,65999,05672,95048,8
A^2 = - 2,28507,54430,06381,0726
A^3 = - - - 3,45422,65239,48546,2
A^4 = - - - - - 5,22156,97802,268
A^5 = - - - - - - - 7,89316,8905
A^6 = - - - - - - - - - - 11,93168,1
&c.

Consequently,

$\frac{1}{2}A^2$ = 1,14253,77215,03190,8363 = B

$\frac{1}{2}A^3$ -	1,72711,32619,74273	
$\frac{1}{8}A^4$ -	- - 65269,62225	
$\frac{1}{2}A^3 + \frac{1}{8}A^4$	1,72711,97889,36498	= C
$\frac{7}{8}A^4$	4,56887,35577	
$\frac{7}{8}A^5$	- - 6,90652	
$\frac{7}{16}A^6$	- - - - 5	
$\frac{7}{8}A^4 + \frac{7}{8}A^5 + \frac{7}{16}A^6$	4,56894,26234	= D
$2\frac{5}{8}A^5$	- - 20,71957	
$7A^6$	- - - - 83	
$2\frac{5}{8}A^5 + 7A^6$ - - -	- 20,72040	= E

which agree with the like differences in the foregoing specimen.

In the 9th chapter, after observing that from the logarithms of 1, 2, 3, 5, and 10, before found, are to be determined, by addition and subtraction, the logarithms of all other numbers which can be produced from these by multiplication and division; for finding the logarithms of other prime numbers, instead of that in the seventh chapter, our author then shows another ingenious method of obtaining numbers beginning with 1 and ciphers, and such as to bear a certain relation to some prime number by means of which its logarithm may be found. The method is this: Find three products having the common difference 1, and such that two of them are produced from factors having given logarithms, and the third produced

from the prime number, whose logarithm is required, either multiplied by itself, or by some other number whose logarithm is given: then the greatest and least of these three products being multiplied together, and the mean by itself, there arise two other products also differing by 1, of which the greater, divided by the less, gives for a quotient 1, with a small decimal, having several ciphers at the beginning. Then the logarithm of this quotient being found as before, from thence will be deduced the required logarithm of the given prime number. Thus if it be proposed to find the logarithm of the prime number 7; here $6 \times 8 = 48$, $7 \times 7 = 49$, and $5 \times 10 = 50$, will be the three products, of which the logarithms of 48 and 50, the 1st and 3d, will be given from those of their factors 6, 8, 5, 10: also $48 \times 50 = 2400$, and $49 \times 49 = 2401$, are the two new products, and $2401 \div 2400 = 1,00041\frac{1}{6}$ their quotient: then the least of 44 means between 1 and this quotient is 1,00000,00000,00000,02367,98249,04333,6405, which multiplied by 43429 &c, produces 0,00000,00000,00000,01028,40172,88387,29715, for its logarithm; which being 44 times doubled, or multiplied by 17592186044416, produces 0,00018,09183,45421,30 for the logarithm of the quotient $1,00041\frac{1}{6}$; which being added to the logarithm of the divisor 2400, gives the logarithm of the dividend 2401; then the half of this logarithm is the logarithm of 49 the root of 2401, and the half of this again gives 0.84509,80400,14256, 82 for the logarithm of 7, which is the root of 49.——The author adds another example to illustrate this method; and then sets down the requisite factors, products, and quotients for finding the logarithms of all other prime numbers up to 100.

The 10th chapter is employed in teaching how to find the logarithms of fractions, namely by subtracting the logarithm of the denominator from that of the numerator, then the logarithm of the fraction is the remainder: which therefore is either abundant or defective, that is positive or negative, as the fraction is greater or less than 1.

In the 11th chapter is shown an ingenious contrivance for very accurately finding intermediate numbers to given logarithms, by the proportional parts. On this occasion, it is remarked, that while the absolute numbers increase uniformly, the logarithms increase unequally, with a decreasing increment; for which reason it happens, that either logarithms or numbers corrected by means of the proportional parts, will not be quite accurate, the logarithms so found being always too small, and the absolute numbers so found too great; but yet so however as that they approach much nearer to accuracy towards the end of the table, where the increments or differences become much nearer to equality, than in the former parts of the table. And from this property our author, ever fruitful in happy expedients to obviate natural difficulties, contrives a device to throw the proportional part, to be found from the numbers and logarithms, always near the end of the table in whatever part they may happen naturally to fall. And it is this: Rejecting the characteristic of any given logarithm, whose

number is proposed to be found, take the arithmetical complement of the decimal part, by subtracting it from 1,000 &c, the logarithm of 10; then find in the table the logarithm next less than this arithmetical complement, together with its absolute number; to this tabular logarithm add the logarithm that was given, and the sum will be a logarithm necessarily falling among those near the end of the table: find then its absolute number, corrected by means of the proportional part, which will not be very inaccurate, as falling near the end of the table: this being divided by the absolute number, before found for the logarithm next less than the arithmetical complement, the quotient will be the required number answering to the given logarithm; which will be much more correct than if it had been found from the proportional part of the difference where it naturally happened to fall: and the reason of this operation is evident from the nature of logarithms. But as this divisor, when taken as the number answering to the logarithm next less than the arithmetical complement, may happen to be a large prime number; it is further remarked, that instead of this number and its logarithm, we may use the next less composite number which has small factors, and *its* logarithm; because the division by those small factors, instead of by the number itself, will be performed by the short and easy way of division in one line. And for the more easy finding proper composite numbers and their factors, our author here subjoins an abacus or list of all such numbers, with their logarithms and component factors, from 1000 to 10000; from which the proper logarithms and factors are immediately obtained by inspection. Thus, for example, to find the root of 10800, or the mean proportional between 1 and 10800: The logarithm of 10800 is 4,03342,37554,8695, the half of which is 2,01671,18777,4347 the logarithm of the number sought, the arithmetical complement of which logarithm is 0,98328,81222,5653; now the nearest logarithm to this in the abacus is 0,98227,12330,3957, and its annexed number is 9600, the factors of which are 2, 6, 8; to this last logarithm adding the logarithm of the number sought, the sum is 0,99898,31107,8304, whose absolute number, corrected by the proportional part, is 99766,12651,6521, which being divided continually by 2, 6, 8, the factors of 96, the last quotient is 103,92304845471; which is pretty correct, the true number being 103,9230484541 33 = $\surd$10800.

We now arrive at the 12th and 13th chapters, in which our ingenious author first of all teaches the rules of the Differential Method, in constructing logarithms by interpolation from differences. This is the same method which has since been more largely treated of by later authors, and particularly by the ingenious Mr. Cotes, in his Canontechnia. How Mr. Briggs came by it does not well appear, as he only delivers the rules, without laying down the principles or investigation of them. He divides the method into two cases, namely when the second differences are equal or nearly equal; and when the differences run out to any length whatever. The former of these is treated in the 12th chapter; and he particularly adapts it to the in-

terpolating 9 equidistant means between two given terms, evidently for this reason, that then the powers of 10 become the principal multipliers or divisors, and so the operations performed mentally. The substance of his process is this: Having given two absolute numbers with their logarithms, to find the logarithms of 9 arithmetical means between the given numbers: Between the given logarithms take the 1st difference, as well as between each of them and their next or equidistant greater and less logarithms: and likewise the second differences, or the two differences of these three first differences; then if these second differences be equal, multiply one of them severally by the numbers 45, 35, &c, as in the annexed tablet, dividing each product by 1000, that is cutting off three figures from each; lastly, to $\frac{1}{10}$ of the 1st difference of the given logarithms add severally the first five quotients, and subtract the other five, so shall the ten results be the respective first differences to be continually added to compose the required series of logarithms. Now this amounts to the same thing as what is at this day taught in the like case: It is known that if A be any term of an equidistant series of terms, and a, b, c, &c, the first of the 1st, 2d, 3d, &c, order of differences; then the term z, whose distance from A is expressed by x, will be thus, $z = A + xa + x.\frac{x-1}{2}b + x.\frac{x-1}{2}.\frac{x-2}{3}c + \&c.$ And if now, with our author, we make the 2d differences equal, then c, d, e, &c, will all vanish, or be equal to 0, and z will become barely $= A + xa + x.\frac{x-1}{2}b$.

1	45	Additive products.
2	35	
3	25	
4	15	
5	5	
6	5	Subductive products.
7	15	
8	25	
9	35	
10	45	

Therefore if we take x successively equal to $\frac{0}{10}, \frac{1}{10}, \frac{2}{10}, \frac{3}{10}$, &c, we shall have the annexed series of terms with their differences. Where it is to be observed, that our author had reduced the differences from the 1st to the 2d form, as he thought it easier to multiply by 5 than to divide by 2. Also all the last terms $(x.\frac{x-1}{2}b)$ are set down positive, because in the logarithms b is negative.—If the two 2d differences be only nearly equal, take an arithmetical mean between them, and proceed with it the same as above with one of the equal 2d differences.—He also shows how to find any one single term, independent of the rest; and concludes the chapter with pointing out a method of finding the proportional part more accurately than before.

Series of terms.	The differences.
A	
$A+\frac{1}{10}a+\frac{9}{200}b$	$\frac{1}{10}a+\frac{9}{200}b=\frac{1}{10}a+\frac{45}{1000}b$
$A+\frac{2}{10}a+\frac{16}{200}b$	$\frac{1}{10}a+\frac{7}{200}b=\frac{1}{10}a+\frac{35}{1000}b$
$A+\frac{3}{10}a+\frac{21}{200}b$	$\frac{1}{10}a+\frac{5}{200}b=\frac{1}{10}a+\frac{25}{1000}b$
$A+\frac{4}{10}a+\frac{24}{200}b$	$\frac{1}{10}a+\frac{3}{200}b=\frac{1}{10}a+\frac{15}{1000}b$
$A+\frac{5}{10}a+\frac{25}{200}b$	$\frac{1}{10}a+\frac{1}{200}b=\frac{1}{10}a+\frac{5}{1000}b$
$A+\frac{6}{10}a+\frac{24}{200}b$	$\frac{1}{10}a-\frac{1}{200}b=\frac{1}{10}a-\frac{5}{1000}b$
$A+\frac{7}{10}a+\frac{21}{200}b$	$\frac{1}{10}a-\frac{3}{200}b=\frac{1}{10}a-\frac{15}{1000}b$
$A+\frac{8}{10}a+\frac{16}{200}b$	$\frac{1}{10}a-\frac{5}{200}b=\frac{1}{10}a-\frac{25}{1000}b$
$A+\frac{9}{10}a+\frac{9}{200}b$	$\frac{1}{10}a-\frac{7}{200}b=\frac{1}{10}a-\frac{35}{1000}b$
$A+\ a$	$\frac{1}{10}a-\frac{9}{200}b=\frac{1}{10}a-\frac{45}{1000}b$

In the 13th chapter our author remarks, that the best way of filling up the intermediate chiliads of his table, namely, from 20000 to 90000, is by quinquisection, or interposing four equidistant means between two given terms; the method of performing which he thus particularly describes. Of the given terms, or logarithms, and two or three others on each side of them, take the 1st, 2d, 3d, &c, differences, till the last differences come out equal, which suppose to be the 5th differences: divide the first differences by 5, the 2d by 25, the 3d by 125, the 4th by 625, and the 5th by 3125, and call the respective quotients the 1st, 2d, 3d, 4th, 5th *mean* differences; or, instead of dividing by these powers of 5, multiply by their reciprocals $\frac{2}{10}$, $\frac{4}{100}$, $\frac{8}{1000}$, $\frac{16}{10000}$, $\frac{32}{100000}$; that is, multiply by 2, 4, 8, 16, 32, cutting off respectively one, two, three, four, five figures from the end of the products, for the several mean differences: then the 4th and 5th of these mean differences are sufficiently accurate; but the 1st, 2d, and 3d are to be corrected in this manner; from the mean third differences subtract three times the 5th difference, and the remainders are the *correct* 3d differences; from the mean 2d differences subtract double the 4th differences, and the remainders are the correct 2d differences; lastly, from the mean 1st differences take the correct 3d differences, and $\frac{1}{5}$ of the 5th difference, and the remainders will be the correct first differences. Such are the corrections when the differences extend as far as the 5th. However, in completing those chiliads in this way, there will be only 3 orders of differences, as neither the 4th nor 5th will enter the calculation, but will vanish through their smallness: therefore the mean 2d and 3d differences will need no correction, and the mean first differences will be corrected by barely subtracting the 3d from them. These preparatory numbers being thus found, all the 2d differences of the logarithms required, will be generated by adding continually, from the less to the greater, the constant 3d difference; and the series of 1st differences will be found by adding the several 2d differences; and lastly, by adding continually these 1st differences to the 1st given logarithm &c, the required logarithmic terms are generated.

These easy rules being laid down, Mr. Briggs next teaches how by them the remaining chiliads may best be completed: namely, having here the logarithm for all numbers up to 20000, find the logarithm to every 5 beyond this, or of 20005, 20010, 20015, &c, in this manner; to the logarithms of the 5th part of each of these, namely 4001, 4002, 4003, &c, add the constant logarithm of 5, and the sums will be the logarithms of all the terms of the series 20005, 20010, 20015, &c: and these logarithms will have the very same differences as those of the series 4001, 4002, 4003, &c; by means of which therefore interpose 4 equidistant terms by the rules above; and thus the whole canon will be easily completed.

Briggs here extends the rules for correcting the mean differences in quinquisection, as far as the 20th difference; he also lays down similar rules for trisection, and speaks of general rules for any other section, but omitted as being less easy. So that he appears to have been pos-

sessed of all that Cotes afterwards delivered in his *Canonotechnia sive Constructio Tabularum per Differentias*, drawn from the *Differential Method*, as their general rules exactly agree, Briggs's mean and correct differences being by Cotes called round and quadrat differences, because he expresses them by the numbers 1, 2, 3, &c, written respectively within a small circle and square.

Briggs also observes, that the same rules equally apply to the construction of equidistant terms of any other kind, such as sines, tangents, secants, the powers of numbers, &c: and further remarks, that of the sines of three equidistant arcs, all the remote differences may be found by the rule of proportion, because the sines and their 2d, 4th, 6th, 8th, &c differences, are continued proportionals, as are also the 1st, 3d, 5th, 7th, &c differences, among themselves; and, like as the 2d, 4th, 6th, &c differences are proportional to the sines of the mean arcs, so also are the 1st, 3d, 5th, &c differences proportional to the cosines of the same arcs. Moreover, with regard to the powers of numbers, he remarks the following curious properties; 1st, that they will each have as many orders of differences as are denoted by the index of the power, the squares having two orders of differences, the cubes three, the 4th powers four, &c; 2d, that the last differences will be all equal, and each equal to the common difference of the sides or roots raised to the given power and multiplied by $1 \times 2 \times 3 \times 4$, &c, continued to as many terms as there are units in the index: so if the roots differ by 1, the second differences of the squares will be each 1×2 or 2, the 3d differences of the cubes each $1 \times 2 \times 3$ or 6, the 4th differences of the 4th powers each $1 \times 2 \times 3 \times 4$ or 24, and so on; and if the common difference of the roots be any other number n, then the last differences of the squares, cubes, 4th powers, 5th powers, &c, will be respectively $2n^2$, $6n^3$, $24n^4$, $120n^5$, &c.

Besides what was shown in the 11th chapter, concerning the taking out the logarithms of large numbers by means of proportional parts, Briggs employs the next or 14th chapter in teaching how, from the first ten chiliads only, and a small table of one page, here given, to find the number answering to any logarithm, and the logarithm to any number, consisting of fourteen places of figures*.

Having thus fully shown the construction and chief properties of his logarithms, our ingenious author, in the remaining eighteen chapters, exemplifies their uses in many curious and important subjects; such as the Rule-of-Three, or rule of proportion; finding the roots of given numbers; finding any number of mean proportionals between two given terms; with other arithmetical rules; also various geometrical subjects, as 1st, Having given the sides of any plane-triangle, to find the area, perpendicular, angles, and diameters of the inscribed and circumscribed circles; 2d, In a right-angled triangle, having given any two of these, to find the rest, viz. one leg

* It is no more than a large exemplification of this method of Briggs's that has been printed so late as 1771, in a 4to tract by Mr. Robert Flower, under the title of *The Radix, A New Way of making Logarithms.* Though Briggs's work might not be known to this writer.

and the hypotenuse, one leg and the sum or difference of the hypotenuse and the other leg, the two legs, one leg and the area, the area and the sum or difference of the legs, the hypotenuse and sum or difference of the legs, the hypotenuse and area, and the perimeter and area; 3d, Upon a given base to describe a triangle equal and isoperimetrical to another triangle given; 4th, To describe the circumference of a circle so, that the three distances from any point in it to the three angles of a given plane triangle, shall be to one another in a given ratio; 5th, Having given the base, the area, and the ratio of the two sides, of a plane triangle, to find the sides; 6th, Given the base, difference of the sides, and area of a triangle, to find the sides; 7th, To find a triangle whose area and perimeter shall be expressed by the same number; 8th, Of four given lines, of which the sum of any three is greater than the fourth, to form a quadrilateral figure about which a circle may be described; 9th, Of the diameter, circumference, and area of a circle, and the surface and solidity of the sphere generated by it, having any one given, to find any of the rest; 10th, Concerning the ellipse, spheroid, and gauging; 11th, To cut a line or a number in extreme and mean ratio; 12th, Given the diameter of a circle, to find the sides and areas of the inscribed and circumscribed regular figures of 3, 4, 5, 6, 8, 10, 12, and 16 sides; 13th, Concerning the regular figures of 7, 9, 15, 24, and 30 sides; 14th, Of isoperimetrical regular figures; 15th, Of equal regular figures; and 16th, Of the sphere and the five regular bodies; which closes this introduction. Such of these problems as can admit of it, are determined by elegant geometrical constructions, and they are all illustrated by accurate arithmetical calculations, performed by logarithms; for the exemplification of which they are purposely given. At the end he remarks, that the chief and most necessary use of logarithms, is in the doctrine of spherical trigonometry, which he here promises to give in a future work, and which was accomplished in his *Trigonometria Britannica*, to the description of which we now proceed.

Of BRIGGS'S *Trigonometria Britannica.*

At the close of the account of writings on the natural sines, tangents, and secants, we omitted the description of this work of our learned author, though it is perhaps the greatest of this kind, all things considered, that ever was executed by one person; purposely reserving my account of it to this place, not only as it is connected with the invention and construction of logarithms, but thinking it deserved more peculiar and distinguished notice, on account of the importance and originality of its contents. The division of the quadrant, and the mode of construction, are both new; and the numbers are far more accurate, and are extended to more places, than they had ever been before. The circular arcs had always been divided in a sexagesimal proportion; but here the quadrant is divided into degrees

L 2

and decimals, as this is a much easier mode of computation than by 60ths; the division being completed only to 100ths of degrees, though his design was to have extended it to 1000ths of degrees. And, besides his own private opinion, he was induced to adopt this method of decimal divisions, partly at the request of other persons, and partly perhaps from the authority of Vieta, pa. 29 *Calendarii Gregoriani*. And it is probable that computations by this decimal division would have come into general use, had it not been for the publication of Vlacq's tables, which were extended to every 10 seconds, or 6th parts of minutes. But besides this method by a decimal division of the degrees, of which the whole circle contains 360, or the quadrant 90, in the 14th chapter he remarks, that some other persons were inclined rather to adopt a complete decimal division of the whole circle, first into 100 parts, and each of these into 1000 parts; and for *their* sakes he subjoins a small table of the sines of every 40th part of the quadrant, and remarks, that from these few the whole may be made out by continual quinquisections; namely, 5 times these 40 make 200, then 5 times these give 1000, thirdly, 5 times these give 5000, and lastly, 5 times these give 25000 for the whole quadrant, or 100000 for the whole circumference.

But to return. Our author's large table consists of natural sines to 15 places, natural tangents and secants each to 10 places, logarithmic sines to 14 places, and logarithmic tangents to 10 places, each besides the characteristic. A most stupendous performance! The table is preceded by an introduction, divided into two books, the one containing an account of the truly ingenious construction of the table, by the author himself; and the other, its uses in trigonometry, &c, by Henry Gellibrand, professor of astronomy in Gresham College, who remarks in the preface, that the work was composed by the author about the year 1600; though it was only published by the direction of Gellibrand in 1633, it having been printed at Gouda under the care of Vlacq, and by the printer of his *Trigonometria Artificialis*, which came out the same year.

After briefly mentioning the common methods of dividing the quadrant, and constructing the tables of sines, &c, from the ancients down to his own time, he hastens to the description of his own peculiar and truly ingenious method, which is briefly this: having first divided the quadrant into a small number of parts, as 72, he finds the sine of one of those parts, then from it the sines of the double, triple, quadruple, &c, up to the quadrant or 72 parts. He next quinquisects each of these parts; by interposing four equidistant means, by differences; he then quinquisects each of these; and finally, each of these again; which completes the division as far as degrees and centesms. The rules for performing all these things he investigates and illustrates in a very ample manner. In treating of multiple and submultiple arcs, he gives general algebraical expressions for the sine or chord of any multiple whatever of a given arc, which he deduced from a geometrical figure, by finding the law for the series of successive multiple chords or sines, after the manner of Vieta, who was the

first person that I know of, who laid down general rules for the chords of multiples and submultiples of arcs and angles: and the same was afterwards improved by Sir I. Newton, to such form, that radius, and double the cosine of the first given angle, are the first and second terms of all the proportions for finding the sines and cosines of the multiple angles. For assigning the coefficients of the terms in the multiple expressions, our author here delivers the construction of figurate or polygonal numbers, inserts a large table of them, and teaches their several uses; one of which is, that every other number, taken in the diagonal lines, furnishes the coefficients of the terms of the general equation by which the sines and chords of multiple arcs are expressed, which he amply illustrates; and another, that the same diagonal numbers constitute the coefficients of the terms of any power of a binomial; which property was also mentioned by Vieta in his *Angulares Sectiones*, *theor.* 6, 7; and before him, pretty fully treated of by Stifelius, in his Arithmetica Integra, fol. 44 & seq.; where he inserts and makes the like use of such a table of figurate numbers, in extracting the roots of all powers whatever. But it was perhaps known much earlier, as appears by the treatise on figurate numbers by Nichomachus, (see Malcolm's History, p. xviii). Though indeed Cardan seems to ascribe this discovery to Stifelius. See his Opus Novum de Proportionibus Numerorum, where he quotes it, and extracts the table and its use from Stifel's book. Cardan, in p. 185, &c, of the same work, makes use of a like table to find the number of variations, or conjugations as he calls them. Stevinus too makes use of the same coefficients and method of roots as Stifelius. See his Arith. page 25. And even Lucas de Burgo extracts the cube root by the same coefficients, about the year 1470. But he does not go to any higher roots. And this is the first mention I have seen made of this law of the coefficients of the powers of a binomial, commonly called Sir I. Newton's binomial theorem, though it is very evident that Sir Isaac was not the first inventor of it: the part of it properly belonging to him seems to be only the extending it to fractional indices, which was indeed an immediate effect of the general method of denoting all roots like powers with fractional exponents, the theorem being not at all altered. However, it appears that our author Briggs was the first who taught the rule for generating the coefficients of the terms successively one from another, of any power of a binomial, independent of those of any other power. For having shown, in his *Abacus* Παγχρηστος (which he so calls on account of its frequent and excellent use, and of which a small specimen is here annexed), that the numbers

Abacus ΠΑΓΧΡΗΣΤΟΣ.							
H	G	F	E	D	C	B	A
−⑧	−⑦	+⑥	+⑤	−④	−③	+②	①
1	1	1	1	1	1	1	1
9	8	7	6	5	4	3	2
	36	28	21	15	10	6	3
		84	56	35	20	10	4
			126	70	35	15	5
				126	56	21	6
					84	28	7
						36	8
							9

in the diagonal directions, ascending from right to left, are the coefficients of the powers of binomials, the indices being the figures in the first perpendicular column A, which are also the coefficients of the 2d terms of each power (those of the first terms, being 1, are here omitted); and that any one of these diagonal numbers is in proportion to the next higher in the diagonal, as the vertical of the former is to the marginal of the latter, that is, as the uppermost number in the column of the former is to the first or right-hand number in the line of the latter; having shown these things, he thereby teaches the generation of the coefficients of any power, independently of all other powers, by the very same law or rule which we now use in the binomial theorem. Thus, for the 9th power; 9 being the coefficient of the 2d term, and 1 always that of the 1st, to find the 3d coefficient we have 2 : 8 :: 9 : 36; for the 4th term, 3 : 7 :: 36 : 84; for the 5th term, 4 : 6 : : 84 : 126; and so on for the rest. That is to say, the coefficients of the terms in any power m, are inversely as the vertical numbers or first line 1, 2, 3, 4,....m, and directly as the ascending numbers m, $m-1$, $m-2$, $m-3$,....1, in the first column A; and that consequently those coefficients are found by the continual multiplication of these fractions $\frac{m}{1}$, $\frac{m-1}{2}$, $\frac{m-2}{3}$, $\frac{m-3}{4}$,.....$\frac{1}{m}$, which is the very theorem as it stands at this day, and as applied by Newton to roots or fractional exponents, as it had before been used for integral powers. This theorem then being thus plainly taught by Briggs about the year 1600, it is surprising how a man of such general reading as Dr. Wallis was, could be quite ignorant of it, as he plainly appears to be by the 85th chapter of his algebra, where he fully ascribes the invention to Newton, and adds, that he himself had formerly sought for such a rule, but without success: Or how Mr. John Bernouilli, not half a century since, could himself first dispute the invention of this theorem with Newton, and then give the discovery of it to Pascal,

who was not born till long after it had been taught by Briggs. *See* Bernouilli's *Works*, *vol.* 4. *pa.* 173. But I do not wonder that Briggs's remark was unknown to Newton, who owed almost every thing to genius and deep meditation, but very little to reading: and I have no doubt that he made the discovery himself, without any light from Briggs, and that he thought it was new for all powers in general, as it was indeed for roots and quantities with fractional and irrational exponents.

When the above table of the sums of figurate numbers is used by our author in determining the coefficients of the terms of the equation, whose root is the chord of any submultiple of an arc, as when the section is expressed by any uneven number, he remarks, that the powers of that chord or root will be the 1st, 3d, 5th, 7th, &c, in the alternate uneven columns, A, C, E, G, &c, with their signs + or — as marked to the powers, continued till the highest power be equal to the index of the section; and that the coefficients of those powers are the sums of two continuous numbers in the same column with the powers, beginning with 1 at the highest power, and gradually descending one line obliquely to the right at each lower power: so, for a trisection, the numbers are 1 in C, and 1+2 =3 in A; and therefore the terms are −1③+3①: for a quinquisection, the numbers are 1 in E, 1+4=5 in C, 2+3=5 in A; so that the terms are 1⑤−5③+5①: for a septisection, the numbers are 1 in G, 1+6=7 in E, 4+10=14 in C, and 3+4= 7 in A: and so the terms are −1⑦+7⑤−14③+7①: and so on, the sum of all these terms being always equal to the chord of the whole or multiple arc. But when the section is denominated by an even number, the squares of the chords enter the equation, instead of the first powers as before, and the dimensions of all the powers are doubled, the coefficients being found as before, and therefore the powers and numbers will be those in the 2d, 4th, 6th, &c, columns: and the uneven sections may also be expressed the same way: hence, for a bisection the terms will be −1④+4②: for a trisection 1⑥−6④+9②: for the quadrisection −1⑧+8⑥−20④+16②: for the quinquisection 1⑩−10⑧+35⑥−50④+25②: and so on.

Our author subjoins another table, a small specimen of which is here annexed, in which the first column consists of the uneven numbers 1, 3, 5, &c, the rest being found by addition as before, and the alternate diagonal numbers themselves are the coefficients.

F	E	D	C	B	A
+⑥	+⑤	−④	−③	+②	①
1	1	1	1	1	1
	7	6	5	4	3
		20	14	9	5
			30	16	7
				25	9
					11

The method is quite different from that of Vieta, who gives another table for the like purpose, a small part of which is here annexed, which is formed by adding, from the number 2, downwards obliquely towards the right: and the coefficients of the terms stand on the horizontal line.

1st	Vieta's *Table.*				
2					
3	2d				
4	2				
5	5	3d			
6	9	2			
7	14	7	4th		
8	20	16	2		
9	27	30	9	5th	
10	35	50	25	2	6th

These angular sections were afterwards further discussed by Oughtred and Wallis. And the same theorems of Vieta and Briggs have been since given in a different form by Herman and the Bernouillis, in the *Leipsic Acts*, and the *Memoirs of the Royal Academy of Sciences.* These theorems they expressed by the alternate terms of the power of a binomial, whose exponent is that of the multiple angle or section. And De Lagny in the same Memoirs, first showed, that the tangents and secants of multiple angles are also expressed by the terms of a binomial, in the form of a fraction, of which some of those terms form the numerator, and others the denominator. Thus, if r express the radius, s the sine, c the cosine, t the tangent, and s the secant, of the angle A; then the sine, cosine, tangent, and secant of n times the angle, are expressed thus, viz.

$$\text{Sin. } nA = \frac{1}{r^{n-1}} \times : \frac{n}{1} c^{n-1} s - \frac{n.\overline{n-1}.\overline{n-2}}{1.2.3} c^{n-3} s^3 + \frac{n.\overline{n-1}.\overline{n-2}.\overline{n-3}.\overline{n-4}}{1.2.3.4.5} c^{n-5} s^5 \ \&c.$$

$$\text{Cosine } nA = \frac{1}{r^{n-1}} \times : c^n - \frac{n.\overline{n-1}}{1.2} c^{n-2} s^2 + \frac{n.\overline{n-1}.\overline{n-2}.\overline{n-3}}{1.2.3.4} c^{n-4} s^4 \ \&c.$$

$$\text{Tang. } nA = r \times \frac{\frac{n}{1} r^{n-1} t - \frac{n.\overline{n-1}.\overline{n-2}}{1.2.3} r^{n-3} t^3 + \frac{n.\overline{n-1}.\overline{n-2}.\overline{n-3}.\overline{n-4}}{1.2.3.4.5} r^{n-5} t^5 \ \&c.}{r^n - \frac{n.\overline{n-1}}{1.2} r^{n-2} t^2 + \frac{n.\overline{n-1}.\overline{n-2}.\overline{n-3}}{1.2.3.4} r^{n-4} t^4 \ \&c.}$$

$$\text{Sec. } nA = r \times \frac{s^n \text{ or } r^2 + t^2}{r^n - \frac{n.\overline{n-1}}{1.2} r^{n-2} t^2 + \frac{n.\overline{n-1}.\overline{n-2}.\overline{n-3}}{1.2.3.4} r^{n-4} t^4 \ \&c.}$$

where it is evident, that the series in the sine of nA, consists of the even terms of the power of the binomial $(c \quad s)^n$, and the series in the cosine of the uneven terms of the same power; also the series in the numerator of the tangent, consists of the even terms of the power $(r+t)^n$, and the denominator, both of the tangent and secant, consists of the uneven terms of the same power $(r+t)^n$. And if the diameter, chord, and chord of the supplement, be substituted for the radius, sine, and cosine, in the expressions for the multiple sine and cosine,

the result will give the chord and chord of the supplement of n times the arc or angle A. These, and various other expressions, for multiple and submultiple arcs, with other improvements in trigonometry, have also been given by Euler, and other eminent writers on the same subject.

The before mentioned De Lagny offered a project for substituting, instead of the common logarithms, a binary arithmetic, which he called the *natural logarithms*, and which he and Leibnitz seem to have both invented about the same time, independently of each other; but the project came to nothing. De Lagny also published, in several Memoirs of the Royal Académy, a new method of determining the angles of figures, which he called *Goniometry*. It consists in measuring, with a pair of compasses, the arc which subtends the angle in question: yet this arc is not measured by applying its extent to any preconstructed scale, but by examining what part it is of half the circumference of the same circle, in this manner: from the proposed angular point as a centre, with a sufficiently large radius, a semicircle being described, a part of which is the arc intercepted by the sides of the proposed angle, the extent of this arc is taken with a pair of fine compasses, and applied continually upon the arc of the semicircle, by which he finds how often it is contained in the semicircle, with usually a small arc remaining; in the same manner he measures how often this remaining arc is contained in the first arc, and what remains again is applied continually to the first remainder, and so the 3d remainder to the 2d, the 4th to the 3d, and so on till there be no remainder, or else till it become insensibly small. By this process he obtains a series of quotients, or fractional parts, one of another, which being properly reduced into one, give the ratio of the first arc to the semi-circumference, or of the proposed angle, to two right angles or 180 degrees, and consequently that angle in degrees, minutes, &c, if required, and that commonly, he says, to a degree of accuracy far exceeding the calculation of the same by means of any tables of sines, tangents, or secants, notwithstanding the apparent paradox in this expression at first sight. Thus, if the first arc be 4 times contained in the semicircle, the remainder once contained in the first arc, the next 5 times in the second, and finally the fourth 2 times in the third: Here the quotients are 4, 1, 5, 2; consequently the fourth or last arc was $\frac{1}{2}$ the 3d; therefore the 3d was $\frac{1}{5\frac{1}{2}}$ or $\frac{2}{11}$ of the 2d, and the 2d was $\frac{1}{1\frac{2}{11}}$ or $\frac{11}{13}$ of the 1st, and the first or arc sought, was $\frac{1}{4\frac{11}{13}}$ or $\frac{13}{63}$ of the semicircle; consequently it contains $37\frac{1}{7}$ degrees, or $37^\circ\ 8'\ 34''\frac{2}{7}$. Hence it is evident that this method is in fact nothing more than an example of continued fractions, the first instance of which was given by lord Brouncker.

But to return from this long digression; Mr. Briggs next treats of

interpolation by differences, and chiefly of quinquisection, after the manner used in the 13th chapter of his construction of logarithms, before described. He here proves that curious property of the sines and their several orders of differences, before mentioned, namely, that of equidifferent arcs, the sines, with the 2d, 4th, 6th, &c differences, are continued proportionals; as also the cosines of the means between those arcs, and the 1st, 3d, 5th, &c differences. And to this treatise, on interpolation by differences, he adds a marginal note, complaining that this 13th chapter of his *Arithmetica Logarithmica* had been omitted by Vlacq in his edition of it; as if he were afraid of an intention to deprive him of the honour of the invention of interpolation by successive differences. The note is this: *Modus correctionis à me traditus est Arithmeticæ Logarithmicæ capite 13, in editione Londinensi: Istud autem caput unà cum sequenti in editione Batava me inconsulto et inscio omissum fuit: nec in omnibus, editionis illius author (vir alioqui industrius et non indoctus), meam mentem videtur assequutus: Ideoque, ne quicquam desit cuiquam, qui integrum canonem conficere cupiat, quædam maximè necessaria illinc huc transferenda censui.*

A large specimen of quinquisection by differences is then given, and he shows how it is to be applied to the construction of the whole canon of sines, both for 100th and 1000th parts of degrees; namely, for centesms, divide the quadrant first into 72 equal parts, and find their sines by the primary methods; then these quinquisected give 360 parts, a second quinquisection gives 1800 parts, and a third gives 9000 parts, or centesms of degrees: but for millesms, divide the quadrant into 144 equal parts; then one quinquisection gives 720, a second gives 3600, a third 18000, and a fourth gives 90000 parts, or millesms.

He next proceeds to the natural tangents and secants, which he directs to be raised in the same manner, by interpolations from a few primary ones, constructed from the known proportions between sines, tangents, and secants; excepting that half the tangents and secants are to be formed by addition and subtraction only, by means of some such theorems as these, namely, 1st, the secant of an arc is equal to the sum of the tangent of the same arc, and the tangent of half its complement, which will find every other secant; 2d, double the tangent of an arc, added to the tangent of half its complement, is equal to the tangent of the sum of that arc and the said half complement, by which rule half the tangents will be found; &c.

In the two remaining chapters of this book are treated the construction of the logarithmic sines, tangents, and secants. This is preceded by some remarks on the origin and invention of them. Our author here observes, that logarithms may be of various kinds; that others had followed the plan of Baron Napier the first inventor, among whom Benjamin Ursinus is especially commended, who applied Napier's logarithms to every ten seconds of the quadrant; but that he himself, encouraged by the noble inventor, devised other lo-

garithms that were much easier and more excellent*. He says he put 10, with ciphers, for the logarithm of radius; 9 for the logarithm sine of 5° 44′, whose natural sine is one 10th of the radius; 8 for that of 34′, whose natural sine is one 100th of the radius, and so on; thereby making 1 the logarithm of the ratio of 10 to 1, which is the characteristic of his species of logarithms.

To construct the logarithmic sines, he directs first to divide the quadrant into 72 equal parts as before, and to find the logarithms of their natural sines as in the 14th chapter of his *Arithmetica Logarithmica*; after which, this number will be increased by quinquisection, first to 360, then to 1800, and lastly to 9000, or centesms of degrees. But if millesms of degrees be required, divide the quadrant first into 144 equal parts, and then by four quinquisections these will be extended to the following parts, 720, 3600, 18000, and 90000, or millesms of degrees. He remarks, however, that the logarithmic sines of only half the quadrant need be found in this manner, as the other half may be found by mere addition, or subtraction, by means of this theorem, as the sine of half an arc is to half radius, so is the sine of the whole arc to the cosine of the said half arc. This theorem he illustrates with examples, and then adds a table of the logarithmic sines of the primary 72 parts of the quadrant, from which the rest are to be made out by quinquisection.

In the next chapter our author shows the construction of the natural tangents and secants more fully than he had done before, demonstrating and illustrating several curious theorems for the easy finding of them. He then concludes this chapter, and the book, with pointing out the very easy construction of the logarithmic tangents and secants by means of these three theorems:

1st, As cosine : sine : : radius : tangent,
2d, As tangent : radius : : radius : cotangent,
3d, As cosine : radius : : radius : secant.

So that in logarithms, the tangents are found by subtracting the cosines from the sines, adding always 10 or the radius; the cotangents are found by subtracting always the tangents from 20 or double the radius; and the secants are found by subtracting the cosines from 20 the double radius.

The 2d book, by Gellibrand, contains the use of the canon in plane and spherical trigonometry.

Besides Briggs's methods of constructing logarithms, above described, no others were given about that time. For as to the calculations made by Vlacq, his numbers being carried to comparatively but few places of figures, they were performed by the easiest of Briggs's methods, and in the manner which this ingenious man had pointed out in his two volumes. Thus, the 70 chiliads of logarithms,

* His words are: "Ego vero ipsius inventoris primi cohortatione adjutus, alios logarithmos applicandos censui, qui multo faciliorem usum habent, præstantiorem. Logarithmus radii circularis vel sinus totius, a me ponitur 10 &c."

from 20000 to 90000, computed by Vlacq, and published in 1628, being extended only to 10 places, yield no more than two orders of mean differences, which are also the correct differences, in quinquisection, and therefore will be made out thus, namely, one-fifth of them by the mere addition of the constant logarithm of 5; and the other four-fifths of them by two easy additions of very small numbers, namely, of the 1st and 2d differences, according to the directions given in Briggs's *Arith. Log.* c. 13, p. 31. And as to Vlacq's logarithmic sines and tangents to every 10 seconds, they were easily computed thus; the sines for half the quadrant were found by taking the logarithms to the natural sines in Rheticus's canon; and then from these the logarithmic sines to the other half quadrant were found by mere addition and subtraction; and from these all the tangents by one single subtraction. So that all these operations might easily be performed by one person, as quickly as a printer could set up the types: and thus the computation and printing might both be carried on together. And hence it appears that there is no reason for admiration at the expedition with which these tables were said to have been brought out.

Of certain Curves related to Logarithms.

About this time the mathematicians of Europe began to consider some curves which have properties analogous to logarithms. Edmund Gunter, it has been said, first gave the idea of a curve, whose abscisses are in arithmetical progression, while the corresponding ordinates are in geometrical progression, or whose abscisses are the logarithms of their ordinates; but I cannot find it noticed in any part of his writings. The same curve was afterwards considered by others, and named the *Logarithmic* or *Logistic* curve by Huygens, in his *Dissertatio de Causa Gravitatis*, where he enumerates all the principal properties of this curve, showing its analogy to logarithms. Many other learned men have also treated of its properties; particularly Le Seur and Jacquier, in their commentary on Newton's Principia; Dr. John Keill, in the elegant little tract on logarithms subjoined to his edition of Euclid's Elements; and Francis Maseres, Esq. Cursitor Baron of the Exchequer, in his ingenious treatise on Trigonometry; in which books the doctrine of logarithms is copiously and learnedly treated, and their analogy to the logarithmic curve &c fully displayed. —It is indeed rather extraordinary that this curve was not sooner announced to the public; since it results immediately from baron Napier's manner of conceiving the generation of logarithms, by only supposing the lines which represent the natural numbers to be placed at right angles to that on which the logarithms are taken. This curve greatly facilitates the conception of logarithms to the imagination, and affords an almost intuitive proof of the very important property of their fluxions, or very small increments, to wit, that the fluxion of the number is to the fluxion of the logarithm, as the number is to the subtangent; as also of this property, that, if three numbers

be taken very nearly equal, so that their ratios to each other may differ but a little from a ratio of equality, as for example, the three numbers 10000000, 10000001, 10000002, their differences will be very nearly proportional to the logarithms of the ratios of those numbers to each other: all which follows from the logarithmic arcs being very little different from their chords, when they are taken very small. And the constant subtangent of this curve is what was afterwards by Cotes called the *Modulus* of the system of logarithms: and since, by the former of the two properties abovementioned, this subtangent is a 4th proportional to the fluxion of the number, the fluxion of the logarithm, and the number itself; this property afforded occasion to Mr. Baron Maseres to give the following definition of the modulus, which is the same in effect as Cotes's, but more clearly expressed, namely, that it is the limit of the magnitude of a 4th proportional to these three quantities, to wit, the difference of any two natural numbers that are nearly equal to each other, either of the said numbers, and the logarithm or measure of the ratio they have to each other. Or we may define the modulus to be the natural number at that part of the system of logarithms, where the fluxion of the number is equal to the fluxion of the logarithm, or where the numbers and logarithms have equal differences. And hence it follows, that the logarithms of equal numbers or equal ratios, in different systems, are to one another as the *moduli* of those systems. Moreover, the ratio whose measure or logarithm is equal to the modulus, and thence by Cotes called the *ratio modularis*, is by calculation found to be the ratio of 2·718281828459&c to 1, or of 1 to ·367879441171&c; the calculation of which number may be seen at full length in Mr. Baron Maseres's Treatise on the Principles of Life-annuities, pa. 274 and 275.

The hyperbolic curve also afforded another source for developing and illustrating the properties and construction of logarithms. For the hyperbolic areas lying between the curve and one asymptote, when they are bounded by ordinates parallel to the other asymptote, are analogous to the logarithms of their abscisses or parts of the asymptote. And so also are the hyperbolic sectors; any sector bounded by an arc of the hyperbola and two radii, being equal to the quadrilateral space bounded by the same arc, the two ordinates to either asymptote from the extremities of the arc, and the part of the asymptote intercepted between them. And though Napier's logarithms are commonly said to be the same as hyperbolic logarithms, it is not to be understood that hyperbolas exhibit Napier's logarithms only, but indeed all other possible systems of logarithms whatever. For, like as the right-angled hyperbola, the side of whose square inscribed at the vertex is 1, gives Napier's logarithms; so any other system of logarithms is expressed by the hyperbola whose asymptotes form a certain oblique angle, the side of the rhombus inscribed at the vertex of the hyperbola in this case also being still 1, the same as the side of the square in the right-angled hyperbola. But the areas of the

square and rhombus, and consequently the logarithms of any one and the same number or ratio, differing according to the sine of the angle of the asymptotes. And the area of the square or rhombus, or any inscribed parallelogram, is also the same thing as what was by Cotes called the modulus of the system of logarithms; which modulus will therefore be expressed by the numerical measure of the sine of the angle formed by the asymptotes, to the radius 1; as that is the same with the number expressing the area of the said square or rhombus, the side being 1: which is another definition of the modulus, to be added to those we before remarked above, in treating of the logarithmic curve. And the evident reason of this is, that in the beginning of the generation of these areas from the vertex of the hyperbola, the nascent increment of the abscisse drawn into the altitude 1, is to the increment of the area, as radius is to the sine of the angle of the ordinate and abscisse, or of the asymptotes; and at the beginning of the logarithms, the nascent increment of the natural numbers is to the increment of the logarithms, as 1 is to the modulus of the system. Hence we easily discover that the angle formed by the asymptotes of the hyperbola exhibiting Briggs's system of logarithms, will be 25 deg. 44 min. 25½ sec. this being the angle whose sine is 0·4342944819 &c, the modulus of this system.

Or indeed any one hyperbola will express all possible systems of logarithms whatever, namely, if the square or rhombus inscribed at the vertex, or, which is the same thing, any parallelogram inscribed between the asymptotes and the curve at any other point, be expounded by the modulus of the system; or, which is the same, by expounding the area, intercepted between two ordinates which are to each other in the ratio of 10 to 1, by the logarithm of that ratio in the proposed system.

As to the first remarks on the analogy between logarithms and the hyperbolic spaces; it having been shown by Gregory St. Vincent, in his *Quadratura Circuli & Sectionum Coni*, published at Antwerp in 1647, that if one asymptote be divided into parts in geometrical progression, and from the points of division ordinates be drawn parallel to the other asymptote, they will divide the space between the asymptote and curve into equal portions; hence it was shown by Mersenne, that by taking the continual sums of those parts, there would be obtained areas in arithmetical progression, adapted to abscisses in geometrical progression, and which therefore were analogous to a system of logarithms. And the same analogy was remarked and illustrated soon after by Huygens and many others, who show how to square the hyperbolic spaces by means of the logarithms.

*Of Gregory's * Computation of Logarithms.*

On the other hand, Mr. James Gregory, in his *Vera Circuli et Hyperbolæ Quadratura*, first printed at Patavi, or Padua, in the year 1667, having approximated to the hyperbolic asymptotic spaces, by means of a series of inscribed and circumscribed polygons, from thence shows how to compute the logarithms, which are analogous to those areas: and thus the quadrature of the hyperbolic spaces became the same thing as the computation of the logarithms. He here also lays down various methods to abridge the computation, with the assistance of some properties of numbers themselves, by which we are enabled to compose the logarithms of all prime numbers under 1000, each by one multiplication, two divisions, and the extraction of the square root. And the same subject is farther pursued in his *Exercitationes Geometricæ*, to be described hereafter.

There are also innumerable other geometrical figures having properties analogous to logarithms: such as the equiangular spiral, the figures of the tangents and secants, &c; which it is not to our purpose to distinguish more particularly.

Of Mercator's † Logarithmotechnia.

In 1668, Nicholas Mercator published his *Logarithmotechnia, sive methodus construendi Logarithmos nova, accurata, & facilis;* in which he delivers a new and ingenious method for computing the logarithms on principles purely arithmetical; which being curious and very accurately performed, I shall here give a rather full and particular account of that little tract, as well as of the small specimen of the quadrature of curves by infinite series, subjoined to it; and more especially as this work gave occasion to the public communication of some of Sir Isaac Newton's earliest pieces, to evince that he had not borrowed them from this publication. So it appears that these two ingenious men had, independent of each other, in some instances fallen upon the same things.

Mercator begins this work with remarking that the word *Logarithm* is composed of the words *ratio* and *number*, being as much as to say the *number of ratios;* which he observes is quite agreeable to the nature of them, for that a logarithm is nothing else but the number of *ratiunculæ* contained in the ratio which any number bears to unity, He then makes a learned and critical dissertation on the nature of

* James Gregory was born at Aberdeen in Scotland 1638, where he was educated. He was professor of mathematics in the college of St. Andrews, and afterwards in that of Edinburgh. He died of a fever in December 1675, being only 36 years of age.

† Nicholas Mercator, a learned mathematician, and an ingenious member of the Royal Society, was a native of Holstein in Germany, but spent most of his time in England, where he died in the year 1690, at about 50 years of age. He was the author of many other works in Geometry, Geography, Astronomy, Astrology, &c.

ratios, their magnitude and measure, conveying a clearer idea of the nature of logarithms than had been given by either Napier or Briggs, or any other writer except Kepler, in his work before described; though those other writers seem indeed to have had in their own minds the same ideas on the subject as Kepler and Mercator, but without having expressed them so clearly. Our author indeed pretty closely follows Kepler in his modes of thinking and expression, and after him, in plain and express terms, calls logarithms the measures of ratios; and, in order to the right understanding that definition of them, he explains what he means by the magnitude of a ratio. This he does pretty fully, but not too fully, considering the nicety and subtlety of the subject of ratios; and their magnitude, with their addition to, and subtraction from, each other, which have been misconceived by very learned mathematicians, who have thence been led into considerable mistakes. Witness the oversight of Gregory St. Vincent, which Huygens animadverted on in the Ἐξέτασις *Cyclometriæ Gregorii à Sancto Vincentio*, and which arose from not understanding, or not adverting to, the nature of ratios, and their proportions one to another. And many other similar mistakes might here be adduced of other eminent writers. From all which we must commend the propriety of our author's attention, in so judiciously discriminating between the magnitude of a ratio, as of a to b, and the fraction $\frac{a}{b}$, or quotient arising from the division of one term of the ratio by the other; which latter method of consideration is always attended with danger of errors and confusion on the subject; though in the 5th definition of the 6th book of Euclid this quotient is accounted the quantity of the ratio; but this definition is probably not genuine, and therefore very properly omitted by professor Simson in his edition of the Elements. And in those ideas on the subject of logarithms, Kepler and Mercator have been followed by Halley, Cotes, and most of the other eminent writers since that time.

Purely from the above idea of logarithms, namely, as being the measures of ratios, and as expressing the number of *ratiunculæ* contained in any ratio, or into which it may be divided, the number of the like equal *ratiunculæ* contained in some one ratio, as of 10 to 1, being supposed given, our author shows how the logarithm or measure of any other ratio may be found. But this however only by-the-by, as not being the principal method he intends to teach, as his last and best, and which we arrive not at till near the end of the book, as we shall see below. Having shown then that these logarithms, or numbers of small ratios, or measures of ratios, may be all properly represented by numbers, and that of 1, or the ratio of equality, the logarithm or measure being always 0, the logarithm of 10, or the measure of the ratio 10 to 1, is most conveniently represented by 1 with any number of ciphers; he then proceeds to show how the measures of all other ratios may be found from this last supposition. And he explains the principles by the two following examples.

First, to find the logarithm of 100·5*, or to find how many *ratiunculæ* are contained in the ratio of 100·5 to 1, the number of *ratiunculæ* in the decuple ratio, or ratio of 10 to 1, being 1,0000000.

The given ratio 100·5 to 1, he first divides into its parts, namely, 100·5 to 100, 100 to 10, and 10 to 1; the last two of which being decuples, it follows that the characteristic will be 2, and it only remains to find how many parts of the next decuple belong to the first ratio of 100·5 to 100. Now if each term of this ratio be multiplied by itself, the products will be in the duplicate ratio of the first terms, or this last ratio will contain a double number of parts; and if these be multiplied by the first terms again, the ratio of the last products will contain three times the number of parts; and so on, the number of times of the first parts contained in the ratio of any like powers of the first terms, being always denoted by the exponent of the power. If therefore the first terms, 100·5 and 100, be continually multiplied till the same powers of them have to each other a ratio whose measure is known, as suppose the decuple ratio 10 to 1, whose measure is 1,0000000; then the exponent of that power shows what multiple this measure 1,0000000, of the decuple ratio, is of the required measure of the first ratio 100·5 to 100; and consequently dividing 1,0000000 by that exponent, the quotient is the measure of the ratio 100·5 to 100 sought. The operation for finding this, he sets down as here follows; where the several multiplications are all performed in the contracted way, by inverting the figures of the multiplier, and retaining only the first number of decimals in each product.

* Mercator distinguishes his decimals from integers thus 100[5, or 100|5.

	power
100·5000 - -	1
5001 - -	1
1005000	
5025	
1010025 - -	2
5200101 - -	2
1010025	
10100	
20	
5	
1020150 - -	4
0510201 - -	4
1020150	
20403	
102	
51	
1040706 - -	8
6070401 -	8
1083068 - -	16
8603801 - -	16
1173035 -	32
5303711 -	32
1376011 - -	64
1106731 - -	64
1893406 - -	128
6043981 - -	128
3584985 - -	256
5894853 - -	256
12852116 - -	512

This power being greater than the decuple of the like power of 100, which must always be 1 with ciphers, resume therefore the 256th power, and multiply it, not by itself, but by the next before, viz. by the 128th, thus

3584985 - -	256
6043981 - -	128
6787831 - -	384
1106731 - -	64
9340130 - -	448
5303711 - -	32
10956299 - -	480

This power again exceeding the same power of 100 more than 10 times, I therefore draw the same 448th, not into the 32d, but the next preceding, thus

9340130 - -	448
8603801 -	16
10115994 -	464

This being again too much, instead of the 16th, draw it into the 8th or next preceding, thus

9340130 - -	448
6070401 - -	8
9720329 - -	456
0510201 - -	4
9916193 -	460
5200101 - -	2
10015603 - -	462

Which power again exceeds the limit; therefore draw the 460th into the 1st, thus

9916193 - -	460
5001 - -	1
9965774 - -	461

Since therefore the 462d power of 100·5 is greater, and the 461st power is less, than the decuple of the same power of 100; I find that the ratio of 100·5 to 100 is contained in the decuple more than 461 times, but less than 462 times. Again,

Since the $\left\{\begin{matrix}460\\461\\462\end{matrix}\right\}$ power is $\left\{\begin{matrix}9916193\\9965774\\10015603\end{matrix}\right\}$ and the differences $\begin{matrix}49581\\49829\end{matrix}\Big\}$ nearly equal;

therefore the proportional part which the exact power, or 10000000, exceeds the next less 9965774, will be easily and accurately found by the Golden Rule, thus:

The just power - - -	10000000
and the next less - - -	9965774
the difference - - -	34226; then

As 49829 the dif. between the next less and greater,
: To 34226 the dif. between the next less and just,
:: So is 10000 : to 6868, the decimal parts; and therefore the ratio of 100·5 to 100, is 461·6868 times contained in the decuple or

ratio of 10 to 1. Dividing now 1,0000000, the measure of the decuple ratio, by 461·6868, the quotient 00216597 is the measure of the ratio of 100·5 to 100; which being added to 2 the measure of 100 to 1, the sum 2,00216597 is the measure of the ratio of 100·5 to 1, that is, the log. of 100·5 is 2,00216597.

In the same manner he next investigates the log. of 99·5, and finds it to be 1,99782307. A few observations are then added, calculated to generalise the consideration of ratios, their magnitude, and their affections. It is here remarked, that he considers the magnitude of the ratio between two quantities as the same, whether the antecedent be the greater or the less of the two terms: so, the magnitude of the ratio of 8 to 5, is the same as of 5 to 8; that is, by the magnitude of the ratio of either to the other, is meant the number of *ratiunculæ* between them, which will evidently be the same, whether the greater or less term be the antecedent. And, he further remarks that, of different ratios, when we divide the greater term of each ratio by the less, that ratio is of the greater mass or magnitude, which produces the greater quotient, *et vice versa;* though those quotients are not proportional to the masses or magnitudes of the ratios. But when he considers the ratio of a greater term to a less, or of a less to a greater, that is to say, the ratio of greater or less inequality, as abstracted from the magnitude of the ratio, he distinguishes it by the word *affection*, as much as to say, greater or less affection, something in the manner of positive and negative quantities, or such as are affected with the signs + and —..... The remainder of this work he delivers in several propositions, as follows.

Prop. 1. In subtracting from each other, two quantities of the same affection, to wit, both positive, or both negative; if the remainder be of the same affection with the two given, then is the quantity subtracted the less of the two, or expressed by the less number; but if the contrary, it is the greater.

Prop. 2. In any continued ratios, as $\frac{a}{a+b}$, $\frac{a+b}{a+2b}$, $\frac{a+2b}{a+3b}$, &c. (by which is meant the ratios of a to $a+b$, $a+b$ to $a+2b$, $a+2b$ to $a+3b$, &c.) of equidifferent terms, the antecedent of each ratio being equal to the consequent of the next preceding one, and proceeding from less terms to greater; the measure of each ratio will be expressed by a greater quantity than that of the next following; and the same through all their orders of differences, namely, the 1st, 2d, 3d, &c. differences; but the contrary, when the terms of the ratios decrease from greater to less.

Prop. 3. In any continued ratios of equidifferent terms, if the 1st or least be a, the difference between the 1st and 2d b, and c, d, e, &c. the respective first term of their 2d, 3d, 4th, &c, differences; then shall the several quantities themselves be as in the annexed scheme;

where each term is composed of the first term, together with as many of the differences as it is distant from the first term, and to those differences joining, for coefficients, the numbers in the sloping or oblique lines contained in the annexed table of figurate numbers, in the same manner, he observes, as the same figurate numbers complete the powers raised from a binomial root, as had long before been taught by others. He also remarks, that this rule not only gives any one term, but also the sum of any number of successive terms from the beginning, making the 2d coefficient the first, the 3d the 2d, and so on; thus, the sum of the first 5 terms is $5a+10b+10c+5d+e$.

1st term - -	a
2d term - -	$a+b$
3d term - -	$a+2b+c$
4th term - -	$a+3b+3c+d$
5th term - -	$a+4b+6c+4d+e$
&c.	&c.

1	1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8	9
1	3	6	10	15	21	28	36	
1	4	10	20	35	56	84		
1	5	15	35	70	126			
1	6	21	56	126				
1	7	28	84					
1	8	36						
1	9							

In the 4th *prop.* it is shown, that if the terms decrease, proceeding from the greater to the less, the same theorems hold good, by only changing the sign of every other term, as in the margin.

1st term - -	a
2d term - -	$a-b$
3d term - -	$a-2b+c$
4th term - -	$a-3b+3c-d$
5th term - -	$a-4b+6c-4d+e$
&c.	&c.

Prop. 6 and 7 treat of the approximate multiplication and division of ratios, or, which is the same thing, the finding nearly any powers, or any roots of a given fraction, in an easy manner. The theorem for raising any power, when reduced to a simpler form, is this, the m power of $\frac{a}{b}$, or, $(\frac{a}{b})^m$, is $=\frac{s\mp md}{s\pm md}$ nearly, where s is $=a+b$, and $d=a \backsim b$, the sum and difference of the two numbers, and the upper or under signs taking place according as $\frac{a}{b}$ is a proper or an improper fraction, that is, according as a is less or greater than b. And the theorem for extracting the mth root of $\frac{a}{b}$, or $\sqrt[m]{\frac{a}{b}}$, is $(\frac{a}{b})^{\frac{1}{m}}=\frac{ms\mp d}{ms\pm d}$ nearly; which latter rule is also the same as the former, as will be evident by substituting $\frac{1}{m}$ instead of m in the first

theorem. So that universally $(\frac{a}{b})^{\frac{m}{n}}$ is $=\frac{ns\mp md}{ns\pm md}$ nearly. These theorems however are nearly true only in some certain cases, namely, when $\frac{a}{b}$ and $\frac{m}{n}$ do not differ greatly from unity. And in the 7th *prop.* the author shows how to find nearly the error of the theorems.

In the 8th *prop.* it is shown, that the measures of ratios of equidifferent terms, are nearly reciprocally as the arithmetical means between the terms of each ratio. So of the ratios $\frac{16}{18}, \frac{33}{35}, \frac{50}{52}$, the mean between the terms of the first ratio is 17, of the 2d 34, of the 3d 51, and the measure of the ratios are nearly as $\frac{1}{17}, \frac{1}{34}, \frac{1}{51}$.

From this property he proceeds, in the 9th *prop.* to find the measure of any ratio less than $\frac{99\cdot5}{100\cdot5}$, which has an equal difference (1) of terms. In the two examples mentioned near the beginning, our author found the logarithm, or measure of the ratio, of $\frac{99\cdot5}{100}$, to be $21769\frac{3}{10}$, and that of $\frac{100}{100\cdot5}$ to be $21659\frac{7}{10}$; therefore the sum 43429 is the logarithm of $\frac{99\cdot5}{100\cdot5}$, or $\frac{99\cdot5}{100} \times \frac{100}{100\cdot5}$; or the logarithm of $\frac{99\cdot5}{100\cdot5}$ is nearer 43430, as found by other more accurate computations.—Now to find the logarithm of $\frac{100}{101}$, having the same difference of terms (1) with the former; it will be, by prop. 8, as 100·5 (the mean between 101 and 100): 100 (the mean between 99·5 and 100·5) : : 43430 : 43213 the logarithm of $\frac{100}{101}$, or the difference between the logarithms of 100 and 101. But the log. of 100 is 2; therefore the logarithm of 101 is 2,0043213.———Again, to find the logarithm of 102, we must first find the logarithm of $\frac{101}{102}$; the mean between its terms being 101·5, therefore as 101·5 : 100 : : 43430 : 42788 the logarithm of $\frac{101}{102}$, or the difference of the logarithms of 101 and 102. But the logarithm of 101 was found above to be 2,0043213; therefore the logarithm of 102 is 2,0086001.—So that, dividing continually 868596 (the double of 434298 the logarithm of $\frac{99\cdot5}{100\cdot5}$ or $\frac{199}{201}$) by each number of the series 201, 203, 205, 207, &c, then add 2 to the first quotient, to the sum add the 2d quotient, and so on, adding always the next quotient to the last sum, the several sums will be the respective logarithms of the numbers in this series 101, 102, 103, 104, &c.

The next, or *prop.* 10, shows that, of two pair of continued ratios whose terms have equal differences, the difference of the measures of the first two ratios, is to the difference of the measures of the other two, as the square of the common term in the two latter, is to that in the former, nearly. Thus, in the four ratios $\frac{a}{a+b}, \frac{a+b}{a+2b}, \frac{a+3b}{a+4b}, \frac{a+4b}{a+5b}$; as the measure of $\frac{aa+2ab}{(a+b)}$ (the difference of the first two, or the quotient of the two fractions): is to the measure of $\frac{aa+8ab+15bb}{(a+4b)^2}$: : so $(a+4b)^2$: is to $(a+b)^2$, nearly.

In *prop.* 11, the author shows, that similar properties take place among two sets of ratios consisting each of 3 or 4, &c, continued numbers.

Prop. 12 shows that, of the powers of numbers in arithmetical progression, the orders of differences which become equal, are the 2d differences in the squares, the 3d differences in the cubes, the 4th differences in the 4th powers, &c. And hence it is shown how to construct all those powers by the continual addition of their differences; as had been long before more fully explained by Briggs.

In the next, or 13th *prop.* our author explains his compendious method of raising the tables of logarithms, showing how to construct the logarithms by addition only, from the properties contained in the 8th, 9th, and 12th propositions. For this purpose, he makes use of the quantity $\frac{a}{b-c}$, which by division he resolves into this infinite series $\frac{a}{b} + \frac{ac}{bb} + \frac{ac^2}{b^3} + \frac{ac^3}{b^4}$ &c (*in infin.*). Putting then $a=100$, the arithmetical mean between the terms of the ratio $\frac{99{\cdot}5}{100{\cdot}5}$, $b=100000$, and c successively equal to 0·5, 1·5, 2·5, &c, that so $b-c$ may be respectively equal to 99999·5, 99998·5, 99997·5, &c, the corresponding means between the terms of the ratios $\frac{99999}{100000}, \frac{99998}{99999}, \frac{99997}{99998}$, &c, it is evident that $\frac{a}{b-c}$ will be the quotient of the 2d term divided by the 1st, in the proportions mentioned in the 8th and 9th propositions; and when all of these quotients are found, it remains then only to multiply them by the constant 3d term 43429, or rather 43429·8, of the proportion, to produce the logarithms of the ratios $\frac{99999}{100000}, \frac{99998}{99999}, \frac{99997}{99998}$, &c, till $\frac{10000}{10001}$, then adding these continually to 4, the logarithm of 10000, the least number, or subtracting them from 5, the logarithm of the highest term 100000, there will result the logarithms of all the absolute numbers from 10000 to 100000. Now when $c=0{\cdot}5$, then

$\frac{a}{b} = \cdot 001$, $\frac{ac}{bb} \cdot 000000005$, $\frac{ac^2}{b^3} = \cdot 000000000000025$, $\frac{ac^3}{b^4} = \cdot 00000000000000000125$,

&c.; therefore $\frac{a}{b-c} = \frac{a}{b} + \frac{ac}{bb} + \frac{ac^2}{b^3}$ &c, is $= \cdot 0010000005000025000125$,

In like manner if $c = 1 \cdot 5$, then $\frac{a}{b-c}$ will be $= \cdot 00100000150000225003375$,

and if $c = 2 \cdot 5$, then $\frac{a}{b-c}$ will be $= \cdot 0010000025000625015625$,

&c. But instead of constructing all the values of $\frac{a}{b-c}$ in the usual way of raising the powers, he directs how they may be found by addition only, as in the last proposition. Having thus found all the values of $\frac{a}{b-c}$, the author then shows, that they may be drawn into the constant logarithm 43429 by addition only, by the help of the annexed table of the first 9 products of it.

1	43429
2	86858
3	130287
4	173716
5	217145
6	260574
7	304003
8	347432
9	390861

The author then distinguishes which of the logarithms it may be proper to find in this way, and which from their component parts. Of these, the logarithms of all even numbers need not be thus computed, being composed from the number 2; which cuts off one-half of the numbers: neither are those numbers to be computed which end in 5, because 5 is one of their factors; these last are $\frac{1}{10}$ of the numbers; and the two together $\frac{1}{2}+\frac{1}{10}$ make $\frac{3}{5}$ of the whole, and of the other $\frac{2}{5}$, the $\frac{1}{3}$ of them, or $\frac{2}{15}$ of the whole, are composed of 3; and hence $\frac{3}{5}+\frac{2}{15}$, or $\frac{11}{15}$ of the numbers, are made up of such as are composed of 2, 3, and 5. As to the other numbers, which may be composed of 7, of 11, &c; he recommends to find *their* logarithms in the general way, the same as if they were incomposites, as it is not worth while to separate them in so easy a mode of calculation. So that of the 90 chiliads of numbers from 10000 to 100000, only 24 chiliads are to be computed. Neither indeed are all of these to be calculated from the foregoing series for $\frac{a}{b-c}$, but only a few of them in that way, and the rest by the proportion in the 8th proposition. Thus, having computed the logarithms of 10003 and 10013, omitting 10023, as being divisible by 3, estimate the logarithms of 10033 and 10043, which are the 30th numbers from 10003 and 10013; and again omitting 10053, a multiple of 3, find the logarithms of 10063 and 10073. Then by prop. 8, say,

As 10048, the arithmetical mean between 10033 and 10063,
to 10018, the arithmetical mean between 10003 and 10033,
so 13006, the difference between the logarithms of 10003 and 10033,
to 12967, the difference between the logarithms of 10033 and 10063.

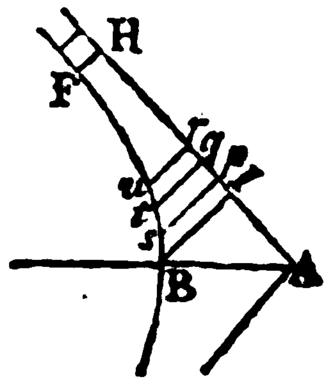
That is, 1st -- As $\left\{\begin{matrix}10048\\10078\\10108\end{matrix}\right\}$: 10018 : : 13006 : $\left\{\begin{matrix}12967\\ \&c.\\ \end{matrix}\right.$

$$\text{Again, As}\left\{\begin{array}{c}10058\\10088\\10118\end{array}\right\} : 10028 :: 12992 : \left\{\begin{array}{c}12953\\\text{\&c.}\end{array}\right.$$

$$\text{And 3dly, As}\left\{\begin{array}{c}10068\\10098\\\text{\&c.}\end{array}\right\} : 10038 :: 12979 : \left\{\begin{array}{c}12940\\\text{\&c.}\end{array}\right.$$

And with this our author concludes his compendium for constructing the tables of logarithms.

He afterwards shows some applications and relations of the doctrine of logarithms to geometrical figures: in order to which, in *prop*. 14, he proves algebraically that, in the right-angled hyperbola, if from the vertex, and from any other point, there be drawn BI, FH perpendicular to the asymptote AH, or parallel to the other asymptote; then will AH : AI : : BI : FH. And,



In *prop*. 15, if AI$=$BI$=1$, and HI$=a$; then will FH$=\frac{1}{1+a}=1-a+a^2-a^3+a^4-a^5$ &c, *in infinitum*, by a continued algebraic division, the process of which he describes, step by step, as a thing that was new or uncommon. But that method of division had been taught before, by Dr. Wallis, in his *Opus Arithmeticum*.

Prop. 16 is this: Any given number being supposed to be divided into innumerable small equal parts, it is required to assign the sum of any powers of the continual sums of those innumerable parts. For which purpose he lays down this rule; if the next higher power of the given number, above that power whose sum is sought, be divided by its exponent, the quotient will be the sum of the powers sought. That is, if N be the given number, and a one of its innumerable equal parts, then will

$a^n+(2a)^n+(3a)^n+(4a)^n$ &c....N^n be$=\frac{N^n+1}{n-1}$: which theorem he demonstrates by a method of induction. And this, it is evident, is the finding the sum of any powers of an infinite number of arithmeticals, of which the greatest term is a given quantity, and the least indefinitely small. It is also remarkable, that the above expression is similar to the rule for finding the fluent to the given fluxion of a power, as afterwards taught by Sir I. Newton.

Mercator then applies this rule, in *prop*. 17, to the quadrature of the hyperbola. Thus, putting AI$=1$, conceive the asymptote to be divided from I into innumerable equal parts, namely, Ip$=$pq$=$qr $=a$; then, by the 14th and 15th,

$$\left.\begin{array}{l}\text{ps}=1-a+a^2-a^3\ \text{\&c}\\\text{qt}=1-2a+4a^2-8a^3\ \text{\&c}\\\text{ru}=1-3a+9a^2-27a^3\ \text{\&c}\end{array}\right\}$$ But the area BIru is $=$ the sum ps$+$qt$+$ru, which is$=$

$3-6a+14a^2-36a^3$ &c, that is, equal to the number of terms contained in the line Ir, minus the sum of those terms, plus the

sum of the squares of the same, minus the sum of their cubes, plus the sum of the 4th powers, &c. Putting now IA = 1, as before, and Ip=0·1 the number of terms, to find the area BIps: by prop. 16 the sum of the terms will be $\frac{0 \cdot 1^2}{2}$ = ·005, the sum of their squares = ·000333333, the sum of their cubes ·000025, the sum of the 4th powers ·000002, the sum of the 5th powers ·000000166, the sum of the 6th powers ·000000014, &c. Therefore the area BIps is = ·1 − ·005 + ·000333333 − ·000025 + 000002 − ·000000166 + ·000000014 &c = 100335347 − ·005025166 = ·095310181 &c.

Again, putting Iq = ·21 the number of terms, he finds in like manner the area BIqt = ·21 − ·02205 + ·003087 − 000486202 + ·000081682 − ·000014294 + ·000002572 − 000000472 + ·000000088 &c = ·213171345 − ·022550984 = ·190620361 &c.

He then adds, hence it appears that, as the ratio of AI to Ap, or 1 to 1·1, is half or subduplicate of the ratio of AI to Aq, or 1 to 1·21, so the area BIps is here found to be half of the area BIqt. These areas he computes to 44 places of figures, and finds them still in the ratio of 2 to 1.

The foregoing doctrine amounts to this, that if the rectangle BI × Ir, which in this case is expressed by Ir only, be put = A, AI being = 1 as before; then the area BIru, or the hyperbolic logarithm of 1 + A, or of the ratio of 1 to 1 + A, will be equal to the infinite series $A - \frac{1}{2}A^2 + \frac{1}{3}A^3 - \frac{1}{4}A^4 + \frac{1}{5}A^5$ &c; and which therefore may be considered as Mercator's quadrature of the hyperbola, or his general expression of an hyperbolic logarithm in an infinite series. And this method was further improved by Dr. Wallis in the Philos. Trans. for the year 1668.

In *prop.* 18 Mercator compares the hyperbolic *areolæ* with the *ratiunculæ* of equidifferent numbers, and observes that,
the areola BIps is the measure of the ratiuncula of AI to Ap,
the areola spqt is the measure of the ratiuncula of Ap to Aq,
the areola tqru is the measure of the ratiuncula of Aq to Ar, &c.

Finally, in the 19th *prop.* he shows how the sums of logarithms may be taken, after the manner of the sums of the *areolæ*. And hence infers as a corollary, how the continual product of any given numbers in arithmetical progression may be obtained; for the sum of the logarithms is the logarithm of the continual product. He then remarks, that from the premises it appears, in what manner Mersennus's problem may be resolved, if not geometrically, at least in figures to any number of places. And thus closes this ingenious tract.

In the Philos. Trans. for 1668 are also given some further illustrations of this work, by the author himself. And in various places also in a similar manner are logarithms and hyperbolic areas treated of by Lord Brouncker, Dr. Wallis, Sir I. Newton, and many other learned persons.

Of Gregory's Exercitationes Geometricæ.

In the same year 1668 came out Mr. James Gregory's *Exercitationes Geometricæ*, in which are contained the following pieces:

1, Appendicula ad veram circuli et hyperbolæ quadraturam?
2, N. Mercatoris quadratura hyperbolæ geometricè demonstrata:
3, Analogia inter lineam meridianam planisphærii nautici et tangentes artificiales geometricè demonstrata; seu quod secantium naturalium additio efficiat tangentes artificiales: —4, Item, quot tangentium naturalium additio efficiat secantes artificiales: — 5, Quadratura conchoidis: —— 6, Quadratura cissoidis:—— & 7, Methodus facilis et accurata componendi secantes et tangentes artificiales.

The first of these pieces, or the *Appendicula*, contains some further extension and illustration of his *Vera circuli et hyperbolæ quadratura*, occasioned by the animadversions made on that work by the celebrated mathematician and philosopher Huygens.

In the 2d is demonstrated geometrically, the quadrature of the hyperbola; by which he finds a series similar to Mercator's for the logarithm, or the hyperbolic space beyond the first ordinate (BI, *fig. pa.* 96.) In like manner he finds another series for the space at an equal distance within that ordinate. These two series having all their terms alike, but all the signs of the one plus, and those of the other alternately plus and minus, by adding the two together, every other term is cancelled, and the double of the rest denotes the sum of both spaces. Gregory then applies these properties to the logarithms; the conclusion from all which may be thus briefly expressed:

since $A-\frac{1}{2}A^2+\frac{1}{3}A^3-\frac{1}{4}A^4$ &c $=$ the log. of $\frac{1+A}{1}$,

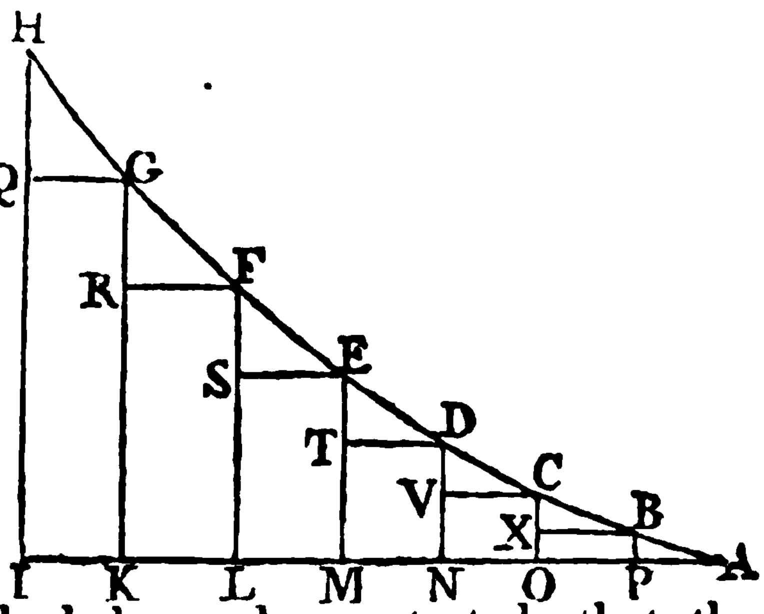
and $A+\frac{1}{2}A^2+\frac{1}{3}A^3+\frac{1}{4}A^4$ &c $=$ the log. of $\frac{1}{1-A}$,

therefore $2A+\frac{2}{3}A^3+\frac{2}{5}A^5+\frac{2}{7}A^7$ &c $=$ the log. of $\frac{1+A}{1-A}$,

or of the ratio of $1-A$ to $1+A$. Which may be accounted Gregory's method of making logarithms.

The remainder of this little volume is chiefly employed about the nautical meridian, and the logarithmic tangents and secants. It does not appear by whom, nor by what accident, was discovered the analogy between a scale of logarithmic tangents and Wright's protraction of the nautical meridian line, which consisted of the sums of the secants. It appears however to have been first published, and introduced into the practice of navigation, by Henry Bond, who mentions this property in an edition of Norwood's Epitome of Navigation, printed about 1645; and he again treats of it more fully in an edition of Gunter's works, printed in 1653, where he teaches, from this property, how to resolve all the cases of Mercator's sailing by the logarithmic tangents, independent of the table of meridional parts. This analogy had only been found to be nearly true by trials, but not demonstrated to be a mathematical property. Such demonstration seems to have been first discovered by Nicholas Mercator, who, desirous of making the most advantage of this

and another concealed invention of his in navigation, by a paper in the Philos. Trans. for June 4, 1666, invites the public to enter into a wager with him, on his ability to prove the truth or falsehood of the supposed analogy. But this mercenary proposal it seems was not taken up by any one, and Mercator reserved his demonstration. The proposal however excited the attention of mathematicians to the subject itself, and a demonstration was not long wanting. The first was published about two years after by Gregory, in the tract now under consideration, and from thence and other similar properties, here demonstrated, he shows, in the last article, how the tables of logarithmic tangents and secants may easily be computed, from the natural tangents and secants. The substance of which is as follows:



Let AI be the arc of a quadrant extended in a right line, and let the figure AHI be composed of the natural tangents of every arc from the point A, erected perpendicular to AI at their respective points: let AP, PO, ON, NM, &c, be the very small equal parts into which the quadrant is divided, namely, each $\frac{1}{60}$, or $\frac{1}{100}$ of a degree: draw PB, OC, ND, ME, &c, perpendicular to AI. Then it is manifest, from what had been demonstrated, that the figures ABP, ACO, &c, are the artificial secants of the arcs AP, AO, &c, putting 0 for the artificial radius. It is also manifest, that the rectangles BO, CN, DM, &c, will be found from the multiplication of the small part AP of the quadrant by each natural tangent. But, he proceeds, there is a little more difficulty in measuring the figures ABP, BCX, CDV, &c; for if the first differences of the tangents be equal, AB, BC, CD, &c, will not differ from right lines, and then the figures ABP, BCX, CDV, &c, will be right-angled triangles, and therefore any one, as HQG, will be $= \frac{1}{2}$ QH $\times$ QG: but if the second differences be equal, the said figures will be portions of trilineal quadratrices; for example HQG will be a portion of a trilineal quadratrix, whose axis is parallel to QH; and each of the last differences being z, it will be QHG $= \frac{1}{2}$ QH $\times$ QG$-\frac{1}{12}$ $z \times$ QG: and if the third differences be equal, the said figures will be portions of trilineal cubices, and then shall QHG be $= \frac{1}{2}$ QH $\times$ QG$-(\surd$ ($\frac{1}{72}$ QH $\times z \times$ QG$^2 - \frac{1}{1728}$ $z^2 \times$ QG^2): when the 4th differences are equal, the said figures are portions of trilineal quadrato-quadratrices, and the 4th differences are equal to 24 times the 4th power of QG divided by the cube of the latus rectum; also when the 5th differences are equal, the said figures are portions of trilineal sursolids, and the 5th differences are equal to 120 times the sursolid of QG divided by the 4th power of the latus rectum; and so on *in infinitum*. What has been here said of the composition of artificial secants from the natural tangents, it is remarked, may in like manner

be understood of the composition of artificial tangents, from the natural secants, according to what was before demonstrated. It is also observed that the artificial tangents and secants are computed, as above, on the supposition that 0 is the logarithm of 1, and 1000000000000 the radius, and 2302585092994015624017870 the logarithm of 10; but that they may be more easily computed, namely, by addition only, by putting $\frac{1}{60}$ of a degree = QG = AP = 1, and the logarithm of 10=7915704467897819; for by this means $\frac{1}{2}$QH × QG is = $\frac{1}{2}$QH = QHG, and $\frac{1}{2}$QH × QG — $\frac{1}{12}$Z × QG = $\frac{1}{2}$ QH — $\frac{1}{12}$Z = QHG, also
$\frac{1}{2}$ QH × QG — √ ($\frac{1}{72}$ QH × Z × QG^2 — $\frac{1}{1728}$Z^2 × QG^2) = $\frac{1}{2}$QH — √ ($\frac{1}{72}$QH × Z — $\frac{1}{1728}$Z^2) = QHG: and finally, by one division only are found the artificial tangents and secants to 10000000000000000, the logarithm of 10, putting still 1 for radius, which are the differences of the artificial tangents and secants, in the table from that artificial radius; and to make the operations easier in multiplying by the number 7915704467897819, or logarithm of 10, a table is set down of its products by the first 9 figures. But if AP or QG be = $\frac{1}{100}$ of a degree, the artificial tangents and secants will answer to 13192840779829703 as the logarithm of 10, the first 9 multiples of which are also placed in the table. But to represent the numbers by the artificial radius, rather than by the logarithm of 10, the author directs to add ciphers, &c.—And so much for Gregory's *Exercitationes Geometricæ.*

The same analogy between the logarithmic tangents and the meridian line, as also other similar properties, were afterwards more elegantly demonstrated by Dr. Halley in the Philos. Trans. for Feb. 1696, and various methods given for computing the same, by examining the nature of the spirals into which the rhumbs are transformed in the stereographical projection of the sphere on the plane of the equator: the doctrine of which was rendered still more easy and elegant by the ingenious Mr. Cotes, in his *Logometria*, first printed in the Philos. Trans. for 1714, and afterwards in the collection of his works published in 1722 by his cousin Dr. Robert Smith, who succeeded him in the Plumian professorship of philosophy in the University of Cambridge.

The learned Dr. Isaac Barrow also, in his *Lectiones Geometricæ*, *Lect.* XI. *Append.* first published in 1672, delivers a similar property, namely, that the sum of all the secants of any arc is analogous to the logarithm of the ratio of $r+s$ to $r-s$, or radius plus sine to radius minus sine; or, which is the same thing, that the meridional parts answering to any degree of latitude, are as the logarithms of the ratios of the versed sines of the distances from the two poles.

Mr. Gregory's method for making logarithms was further exemplified in numbers, in a small tract on this subject, printed in 1688, by one Euclid Speidell, a simple and illiterate person, and son of John Speidell, before mentioned among the first writers on logarithms.

Gregory also invented many other infinite series, and among them these following, viz. a being an arc, t its tangent, and s the secant, to the radius r; then is

$$a=t-\frac{t^3}{3r^2}+\frac{t^5}{5r^4}-\frac{t^7}{7r^6}+\frac{t^9}{9r^8}\ \&c.$$

$$t=a+\frac{a^3}{3r^2}+\frac{2a^5}{15r^4}+\frac{17a^7}{315r^6}+\frac{62a^9}{2835r^8}\ \&c.$$

$$s=r+\frac{a^2}{2r}+\frac{5a^4}{24r^3}+\frac{61a^6}{720r^5}+\frac{277a^8}{8064r^7}\ \&c.$$

And if τ and σ denote the artificial or logarithmic tangent and secant of the same arc a, the whole quadrant being q, and $e=2a-q$; then is

$$e=\tau-\frac{\tau^3}{6r^2}+\frac{\tau^5}{24r^4}-\frac{61\tau^7}{5040r^6}+\frac{277\tau^9}{72576r^8}\ \&c.$$

$$\tau=e+\frac{e^3}{6r^2}+\frac{e^5}{24r^4}+\frac{61e^7}{5040r}+\frac{277e^9}{72576r^8}\ \&c.$$

$$\sigma=\frac{a^2}{2r}+\frac{a^4}{12r^3}+\frac{a^6}{45r^5}+\frac{17a^8}{2520r^7}+\frac{62a^{10}}{28350r^9}\ \&c.$$

Also if s denote the artificial secant of 45°, and $s+l$ the artificial secant of any arc a, the artificial radius being 0; then is

$$a=\tfrac{1}{2}q+l-\frac{l^2}{r}+\frac{4l^3}{3r^2}-\frac{7l^4}{3r^3}+\frac{14l^5}{3r^4}-\frac{452l^6}{45r^5}\ \&c.$$

The investigation of all which series may be seen at pa. 298 *et seq.* vol. 1. Dr. Horsley's learned and elegant commentary on Sir I. Newton's works, as they were given in the *Commercium Epistolicum* N° xx, without demonstration, and where the number 2 is also wanting in the denominator of the first term of the series expressing the value of σ.

Such then were the ways in which Mercator and Gregory applied these their very simple series $A-\tfrac{1}{2}A^2+\tfrac{1}{3}A^3-\tfrac{1}{4}A^4$ &c, and $A+\tfrac{1}{2}A^2+\tfrac{1}{3}A^3+\tfrac{1}{4}A^4$ &c, for the purpose of computing logarithms. But they might, as I apprehend, have applied them to this purpose in a shorter and more direct manner, by computing, by their means, only a few logarithms of small ratios, in which the terms of the series would have decreased by the powers of 10 or some greater number, the numerators of all the terms being unity, and their denominators the powers of 10 or some greater number, and then employing these few logarithms, so computed, to the finding of the logarithms of other and greater ratios, by the easy operations of mere addition and subtraction. This might have been done for the logarithms of the ratios of the first ten numbers, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11, to 1, in the following manner, communicated by Mr. Baron Maseres.

In the first place, the logarithm of the ratio of 10 to 9, or of 1 to $\frac{9}{10}$, or of 1 to $1-\frac{1}{10}$, is equal to the series

$$\frac{1}{1\times 10}+\frac{1}{2\times 100}+\frac{1}{3\times 1000}+\frac{1}{4\times 10000}+\frac{1}{5\times 100000}\ \&c.$$

In like manner are easily found the logarithms of the ratios of

11 to 10; and then, by the same series, those of 121 to 120, and of 81 to 80, and of 2401 to 2400; in all which cases the series would converge still faster than in the first two cases. We may then proceed by mere addition and subtraction of logarithms, as follows:

Log. $\frac{11}{9} = $ L. $\frac{11}{10} + $ L. $\frac{10}{9}$,	L. $\frac{120}{80} = $ L. $\frac{3}{2}$,	L. $\frac{80}{16} = $ L. $\frac{81}{16} - $ L. $\frac{81}{80}$,
L. $\frac{121}{81} = 2$L. $\frac{11}{9}$,	L. $\frac{9}{4} = 2$L. $\frac{3}{2}$,	L. $\frac{5}{1} = $ L. $\frac{80}{16}$,
L. $\frac{121}{80} = $ L. $\frac{121}{81} + $ L. $\frac{81}{80}$,	L. $\frac{10}{4} = $ L. $\frac{10}{9} + $ L. $\frac{9}{4}$,	L. $\frac{5}{2} = $ L. $\frac{10}{4}$,
L. $\frac{120}{80} = $ L. $\frac{121}{80} - $ L. $\frac{121}{120}$,	L. $\frac{81}{16} = 2$L. $\frac{9}{4}$	L. $\frac{2}{1} = $ L. $\frac{5}{1} - $ L. $\frac{5}{2}$.

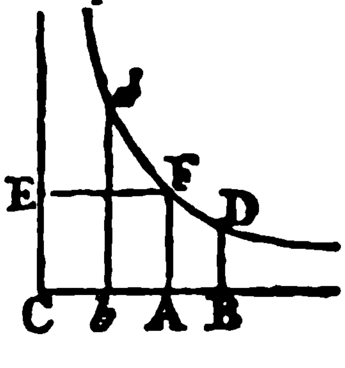
Having thus got the logarithm of the ratio of 2 to 1, or, in common language, the logarithm of 2, the logarithms of all kinds of even numbers may be derived from those of the odd numbers, which are their coefficients, with 2 or its powers. We may then proceed as follows:

L. $4 = 2$L. 2,	L. $100 = 2$L. 10,	L. $2401 = $ L. $\frac{2401}{2400} + $ L. 2400,
L. $10 = $ L. $\frac{10}{4} + $ L. 4,	L. $8 = 3$L. 2,	L. $7 = \frac{1}{4}$L. 2401,
L. $9 = $ L. $\frac{9}{4} + $ L. 4,	L. $24 = $ L. 8 + L. 3,	L. $11 = $ L. $\frac{11}{9} + $ L. 9,
L. $3 = \frac{1}{2}$L. 9,	L. $2400 = $ L. 100 + L. 24,	L. $6 = $ L. 2 + L. 3.

Thus we have got the logarithms of 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. And this is, on the whole, perhaps the best method of computing logarithms that can be taken. There have been indeed some methods discovered by Dr. Halley, and other mathematicians, for computing the logarithms of the ratios of prime numbers to the next adjacent even numbers, which are still shorter than the application of the foregoing series. But those methods are less simple and easy to understand and apply, than these series; and the computation of logarithms by these series, when the terms of them decrease by the powers of 10, or of some greater number, is so very short and easy (as we have seen in the foregoing computations of the logarithms of the ratios of 10 to 9, 11 to 10, 81 to 80, 121 to 120, &c,) that it is not worth while to seek for any shorter methods of computing them. And this method of computing logarithms is very nearly the same with that of Sir Isaac Newton, in his second letter to Mr. Oldenburg, dated October 1676, as will be seen in the following article.

Of Sir Isaac Newton's Methods.

The excellent Sir I. Newton greatly improved the quadrature of the hyperbolical-asymptotic spaces by infinite series, derived from the general quadrature of curves by his method of fluxions; or rather indeed he invented that method himself, and the construction of logarithms derived from it, in the year 1665 or 1666, before the publication of either Mercator's or Gregory's books, as appears by his letter to Mr. Oldenburg, dated Oct. 24, 1676, printed in pa. 634 *et seq.* vol. 3, of Wallis's works, and elsewhere. The quadrature of the hyperbola, thence translated, is to this effect. Let DFD be an hyperbola, whose centre is C, vertex F, and interposed square CAFE = 1. In CA take AB and Ab on each side $= \frac{1}{10}$ or 0·1: And, erecting the perpendiculars BD, bd; half the sum of the spaces AD and Ad will be



$$=0\cdot1+\frac{0\cdot001}{3}+\frac{0\cdot00001}{5}+\frac{0\cdot0000001}{7}\ \&c.$$

and the half diff. $=\frac{0.01}{2}+\frac{0\cdot0001}{4}+\frac{0\cdot000001}{6}+\frac{0\cdot00000001}{8}$ &c.

Which reduced will stand thus,

1·0000000000000,	0·0050000000000	The sum of these 0·1053605156577 is Ad,
3333333333	250000000	and the differ. 0·0953101798043 is AD,
20000000	1666666	In like manner, putting AB and Ab
142857	12500	each=0·2, there is obtained
1111	100	Ad =0·2231435513142, and
9	1	AD =0.1823215567939.
0·1003353477310.	0·0050251679267	

Having thus the hyperbolic logarithms of the four decimal numbers 0·8, 0·9, 1·1, and 1·2; and since $\frac{1\cdot2}{0\cdot8}\times\frac{1\cdot2}{0\cdot9}=2$, and 0·8 and 0·9 are less than unity; adding their logarithms to double the logarithm of 1·2, we have 0·6931471805597, the hyperbolic logarithm of 2. To the triple of this adding the logarithm of 0·8, because $\frac{2\times2\times2}{0\cdot8}=10$, we have 2·3025850929933, the logarithm of 10. Hence by one addition are found the logarithms of 9 and 11: And thus the logarithms of all these prime numbers, 2, 3, 5, 11, are prepared. Moreover, by only depressing the numbers above computed, lower in the decimal places, and adding, are obtained the logarithms of the decimals 0·98, 0·99, 1·01, 1·02; as also of these 0·998, 0·999, 1·001, 1·002. And hence, by addition and subtraction, will arise the logarithms of the primes 7, 13, 17, 37, &c. All which logarithms being divided by the above logarithm of 10, give the common logarithms to be inserted in the table.

And again, a few pages farther on, in the same letter, he resumes the construction of the logarithms, thus: Having found, as above, the hyperbolic logarithms of 10, 0·98, 0·99, 1·01, 1·02, which may be effected in an hour or two, dividing the last four logarithms by the logarithm of 10, and adding the index 2, we have the tabular logarithms of 98, 99, 100, 101, 102. Then by interpolating nine means between each of these, will be obtained the logarithms of all numbers between 980 and 1020; and again interpolating 9 means between every two numbers from 980 to 1000, the table will be so far constructed. Then from these will be collected the logarithms of all the primes under 100, together with those of their multiples; all which will require only addition and subtraction; for

$$\sqrt[10]{\frac{9984\times1020}{9945}}=2;\ \frac{10}{2}=5;\ \sqrt{\frac{98}{2}}=7;\ \frac{99}{9}=11;\ \frac{1001}{7\times11}=13;\ \frac{102}{6}=17;$$

$$\frac{988}{4\times13}=19;\ \frac{9936}{16\times27}=23;\ \frac{986}{2\times17}=29;\ \frac{992}{32}=31;\ \frac{999}{27}=37;\ \frac{984}{24}=41;$$

$$\frac{989}{23}=43;\ \frac{987}{27}=47;\ \frac{9911}{11\times17}=53;\ \frac{9971}{13\times13}=59;\ \frac{9882}{2\times81}=61;\ \frac{9849}{3\times49}=67;$$

$$\frac{994}{14}=71;\ \frac{9928}{8\times17}=73;\ \frac{9954}{7\times18}=79;\ \frac{996}{12}=83;\ \frac{9968}{7\times16}=89;\ \frac{9894}{6\times17}=97.$$

This quadrature of the hyperbola, and its application to the construction of logarithms, are still further explained by our celebrated author in his treatise on Fluxions, published by Colson in 1736, where he gives all the three series for the areas AD, Ad, Bd, in general terms, the former the same as that published by Mercator, and the latter by Gregory; and he explains the manner of deriving the latter series from the former, namely by uniting together the two series for the spaces on each side of an ordinate, bounded by other ordinates at equal distances, every 2d term of each series is cancelled, and the result is a series converging much quicker than either of the former. And, in this treatise on fluxions, as well as in the letter before quoted, he recommends this as the most convenient way of raising a canon of logarithms, computing by the series the hyperbolic spaces answering to the prime numbers 2, 3, 5, 7, 11, &c, and dividing them by 2·30258509299 10157, which is the area corresponding to the number 10, or else multiplying them by its reciprocal 0·43429448190325 18, for the common logarithms. "Then the logarithms of all the numbers in the canon which are made by the multiplication of these, are to be found by the addition of their logarithms, as is usual. And the void places are to be interpolated afterwards by the help of this theorem: Let n be a number to which a logarithm is to be adapted, x the difference between that and the two nearest numbers equally distant on each side, whose logarithms are already found, and let d be half the difference of the logarithms; then the required logarithm of the number n will be obtained by adding $d + \frac{dx}{2n} + \frac{dx^3}{12n^3}$ &c to the logarithm of the less number." This theorem he demonstrates by the hyperbolic areas, and then proceeds thus; "The two first terms $d + \frac{dx}{2n}$ of this series I think to be accurate enough for the construction of a canon of logarithms, even though they were to be produced to 14 or 15 figures; provided the number whose logarithm is to be found be not less than 1000. And this can give little trouble in the calculation, because x is generally an unit, or the number 2. Yet it is not necessary to interpolate all the places by the help of this rule. For the logarithms of numbers which are produced by the multiplication or division of the number last found, may be obtained by the numbers whose logarithms were had before, by the addition or subtraction of their logarithms. Moreover, by the differences of the logarithms, and by their 2d and 3d differences, if there be occasion, the void places may be more expeditiously supplied; the foregoing rule being to be applied only when the continuation of some full places is wanted, in order to obtain those differences, &c." So that Sir I. Newton of himself discovered all the series for the above quadrature which were found out, and afterwards published, partly by Mercator and partly by Gregory; and these we may here exhibit in one view all together and that in a general manner for any hyperbola, namely putting CA $= a$, AF

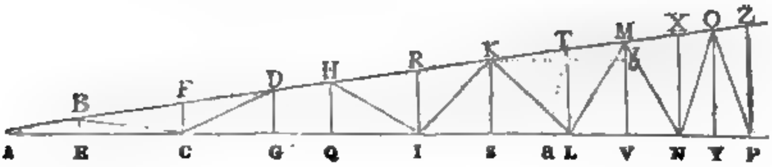
$=b$, and AB $=$ Ab $= x$; then will BD $= \frac{ab}{a+x}$, and bd $= \frac{ab}{a+x}$; whence the areas are as below, *viz.*

$$\text{AD} = bx - \frac{bx^2}{2a} + \frac{bx^3}{3a^2} - \frac{bx^4}{4a^3} + \frac{bx^5}{5a^4} \text{ \&c.}$$

$$\text{Ad} = bx + \frac{bx^2}{2a} + \frac{bx^3}{3a^2} + \frac{bx^4}{4a^3} + \frac{bx^5}{5a^4} \text{ \&c.}$$

$$\text{Dd} = 2bx + \frac{2bx^3}{3a^2} + \frac{2bx^5}{5a^4} + \frac{2bx^7}{7a^6} + \frac{2bx^9}{9a^8} \text{ \&c.}$$

In the same letter also, above quoted, to Mr. Oldenburg, our illustrious author teaches a method of constructing the trigonometrical canon of sines, by an easier method of multiple angles than that before delivered by Briggs for the same purpose, because that in Sir Isaac's way radius or 1 is the first term, and double the sine or cosine of the first given angle is the 2d term of all the proportions by which the several successive multiple sines or cosines are found. The substance of the method is thus: The best foundation for the construction of the tables of sines, is the continual addition of a given angle to itself or to another given angle. As if the angle A be to be added;



inscribe HI, IK, KL, LM, MN, NO, OP, &c, each equal to the radius AB; and to the opposite sides draw the perpendiculars DE, HQ, IR, KS, LT, MV, NX, OY, &c; so shall the angle A be the common difference of the angles HIQ, IKH, KLI, LMK, &c; their sines HQ, IR, KS, &c; and their cosines IQ, KR, LS, &c. Now let any one of them, LMK, be given, then the rest will be thus found: Draw Ta and Kb perpendicular to SV and MV; now because of the equiangular triangles ABE, TLa, KMb, ALT, AMV, &c, it will be, AB : AE :: KT : Sa (=½LV+½LS) :: LT : Ta (=½MV+½KS,) and AB : BE :: LT : La (=½LS−½LV). :: KT (=½KM) : ½Mb (=½MV−½KS.) Hence are given the sines and cosines KS, MV, LS, LV. And the method of continuing the progressions is evident. Namely,

as AB : 2AE :: $\begin{cases} \text{LV : MT + MX :: MX : NV + NY \&c} \\ \text{MV : NX + LT :: NX : OY + MV \&c} \end{cases}$

or AB : 2BE :: $\begin{cases} \text{LV : NX − LT :: MX : OY − MV \&c} \\ \text{MV : MT − MX :: NX : NV − NY \&c} \end{cases}$

And on the other hand, AB : 2AE :: LS : KT + KR, &c.
Therefore put AB $=$ 1, and make BE × LT $=$ La, AE × KT $=$ Sa, Sa − La $=$ LV, 2AE × LV − TM $=$ MX, &c.

The sense of these general theorems is this, that if *P* be any one

among a series of angles in arithmetical progression, the angle d being their common difference, then as radius or

$$1 : 2 \cos. d :: \begin{cases} \cos. P : \cos. \overline{P+d} + \cos. \overline{P-d} \\ \sin. P : \sin. \overline{P+d} + \sin. \overline{P-d} \end{cases}$$

$$1 : 2 \sin. d :: \begin{cases} \cos. P : \sin. \overline{P+d} - \sin. \overline{P-d} \\ \sin. P : \cos. \overline{P+d} - \cos. \overline{P-d} \end{cases}$$

where the 4th terms of these proportions are the sums or differences of the sines or cosines of the two angles next less and greater than any angle P in the series; and therefore subtracting the less extreme from the sum, or adding it to the difference, the result will be the greater extreme, or the next sine or cosine beyond that of the term P. And in the same manner are all the rest to be found. This method, it is evident, is equally applicable whether the common difference d, or angle A, be equal to one term of the series or not: when it is one of the terms, then the whole series of sines and cosines becomes thus, viz, as $1 : 2 \cos. d ::$

$$\begin{matrix} \sin. d : \sin. 2d & :: \sin. 2d : \sin. d + \sin. 3d & :: \sin. 3d : \sin. 2d + \sin. 4d & :: \sin. 4d : \sin. 3d + \sin. 5d \text{ \&c.} \\ \cos. d : 1 + \cos. 2d & :: \cos. 2d : \cos. d + \cos. 3d & :: \cos. 3d : \cos. 2d + \cos. 4d & :: \cos. 4d : \cos. 3d + \cos. 5d \text{ \&c.} \end{matrix}$$

which is the very method contained in the directions given by Abraham Sharp, for constructing the canon of sines.

Sir I. Newton remarks, that it only remains to find the sine and cosine of a first angle A, by some other method; and for this purpose, he directs us to make use of some of his own infinite series: thus, by them will be found 1·57079 &c for the quadrantal arc, the square of which is 2·4694 &c; divide this square by the square of the number expressing the ratio of 90 degrees to the angle A, calling the quotient z; then 3 or 4 terms of this series $1 - \frac{z}{2} + \frac{z^2}{24} - \frac{z^3}{720} + \frac{z^4}{40320}$ &c, will give the cosine of that angle A. Thus we may first find an angle of 5 degrees, and thence the table may be computed to the series of every 5 degrees, then these interpolated to degrees or half degrees by the same method, and these interpolated again; and so on as far as necessary. But two-thirds of the table being computed in this manner, the remaining third will be found by addition or subtraction only, as is well known.

Various other improvements in logarithms and trigonometry are owing to the same excellent personage; such as the series for expressing the relation between circular arcs and their sines, cosines, versed sines, tangents, &c; namely, the arc being a, the sine s, the versed sine v, cosine c, tangent t, radius 1, then is

$$\begin{aligned}
a &= s + \tfrac{1}{6}s^3 + \tfrac{3}{40}s^5 + \tfrac{5}{112}s^7 + \tfrac{35}{1152}s^9 + \tfrac{63}{2816}s^{11} \text{ \&c.} \\
a &= v^{\frac{1}{2}} + \tfrac{1}{6}v^{\frac{3}{2}} + \tfrac{3}{40}v^{\frac{5}{2}} + \tfrac{5}{112}v^{\frac{7}{2}} + \tfrac{35}{1152}v^{\frac{9}{2}} + \tfrac{63}{2816}v^{\frac{11}{2}} \text{ \&c.} \\
a &= t - \tfrac{1}{3}t^3 + \tfrac{1}{5}t^5 - \tfrac{1}{7}t^7 + \tfrac{1}{9}t^9 - \tfrac{1}{11}t^{11} \text{ \&c.} \\
s &= a - \tfrac{1}{6}a^3 + \tfrac{1}{120}a^5 - \tfrac{1}{5040}a^7 + \tfrac{1}{362880}a^9 - \tfrac{1}{39916800}a^{11} \text{ \&c.} \\
c &= 1 - \tfrac{1}{2}a^2 + \tfrac{1}{24}a^4 - \tfrac{1}{720}a^6 + \tfrac{1}{40320}a^8 - \tfrac{1}{3628800}a^{10} \text{ \&c.} \\
v &= \tfrac{1}{2}a^2 - \tfrac{1}{24}a^4 + \tfrac{1}{720}a^6 - \tfrac{1}{40320}a^8 + \tfrac{1}{3628800}a^{10} - \tfrac{1}{479001600}a^{12} \text{ \&c.} \\
t &= a + \tfrac{1}{3}a^3 + \tfrac{2}{15}a^5 + \tfrac{17}{315}a^7 + \tfrac{62}{2835}a^9 + \tfrac{1382}{155925}a^{11} \text{ \&c.}
\end{aligned}$$

Of Dr. Halley's Method.

Many other improvements in the construction of logarithms are also derived from the same doctrine of fluxions, as we shall show hereafter. In the mean time proceed we to the ingenious method of the learned Dr. Edmund Halley, Secretary to the Royal Society, and the second Astronomer Royal, having succeeded Mr. Flamsteed in that honourable office in the year 1719, at the Royal Observatory at Greenwich, where he died the 14th of January 1742, in the 86th year of his age. His method was first printed in the Philosophical Transactions for the year 1695, and is entitled "A most compendious and facile method for constructing the logarithms, exemplified and demonstrated from the nature of numbers, without any regard to the hyperbola, with a speedy method for finding the number from the given logarithm."

Instead of the more ordinary definition of logarithms, as *numerorum proportionalium æquidifferentes comiles*, in this tract our learned author adopts this other, *numeri rationem exponentes*, as being better adapted to the principle on which Logarithms are here constructed, where those quantities are not considered as the logarithms of the numbers, for example, of 2, or of 3, or of 10, but as the logarithms of the ratios of 1 to 2, or 1 to 3, or 1 to 10. In this consideration he first pursues the idea of Kepler and Mercator, remarking that any such ratio is proportional to, and is measured by, the number of equal ratiunculæ contained in each; which ratiunculæ are to be understood as in a continued scale of proportionals, infinite in number, between the two terms of the ratio; which infinite number of mean proportionals is to that infinite number of the like and equal ratiunculæ between any other two terms, as the logarithm of the one ratio is to the logarithm of the other: thus, if there be supposed between 1 and 10 an infinite scale of mean proportionals, whose number is 100000 &c *in infinitum*; then between 1 and 2 there will be 30102 &c of such proportionals; and between 1 and 3 there will be 47712 &c of them; which numbers therefore are the logarithms of the ratios of 1 to 10, 1 to 2, and 1 to 3. But for the sake of *his* mode of constructing logarithms, he changes this idea of *equal* ratiunculæ, for that of other ratiunculæ, so constituted, as that the *same* infinite number of them shall be contained in the ratio of 1 to every other number whatever; and that therefore these latter ratiunculæ will be of *unequal* or different magnitudes in all the different ratios, and in such sort, that in any one ratio, the *magnitude* of each of the ratiunculæ in this latter case, will be as the *number* of them in the former. And therefore if between 1 and any number proposed, there be taken any infinity of mean proportionals, the infinitely small augment or decrement of the first of those means from the first term 1, will be a ratiuncula of the ratio of 1 to the said number; and as the numbers of all the ratiunculæ in these continued proportionals is the same,

their sum, or the whole ratio, will be directly proportional to the magnitude of one of the said ratiunculæ in each ratio. But it is also evident that the first of any number of means, between 1 and any number, is always equal to such root of that number, whose index is expressed by the number of those proportionals from 1; so if m denote the number of proportionals from 1, then the first term after 1 will be the mth root of that number. Hence the indefinite root of any number being extracted, the *differentiola* of the said root from unity, shall be as the logarithm of that number. So if there be required the logarithm of the ratio of 1 to $1+q$; the first term after 1 will be $(1+q)^{\frac{1}{m}}$, and therefore the required logarithm will be as $(1+q)^{\frac{1}{m}}-1$. But, $(1+q)^{\frac{1}{m}}$ is $=1+\frac{1}{m}q+\frac{1}{m}\cdot\frac{1-m}{2m}q^2+\frac{1}{m}\cdot\frac{1-m}{2m}\cdot\frac{1-2m}{3m}q^3$ &c; or by omitting the 1 in the compound numerators, as infinitely small in respect of the infinite number m, the same series will become $1+\frac{1}{m}q+\frac{1}{m}\cdot\frac{-m}{2m}q^2+\frac{1}{m}\cdot\frac{-m}{2m}\cdot\frac{-2m}{3m}q^3$ &c, or by abbreviation it is $1+\frac{1}{m}q-\frac{1}{2m}q^2+\frac{1}{3m}q^3-\frac{1}{4m}q^4$ &c. and hence, finding the differentiola by subtracting 1, the logarithm of the ratio of 1 to $1+q$ is as $\frac{1}{m}\times(q-\frac{1}{2}q^2+\frac{1}{3}q^3-\frac{1}{4}q^4+\frac{1}{5}q^5-\frac{1}{6}q^6$ &c.) Now the index m may be taken equal to any infinite number, and thus all the varieties of scales of logarithms may be produced: so if m be taken 1000000 &c, the theorem will give Napier's logarithms; but if m be taken equal to 230258 &c, there will arise Briggs's logarithms.

This theorem being for the increasing ratio of 1 to $1+q$; if that for the decreasing ratio of 1 to $1-q$ be also sought, it will be obtained by a proper change of the signs, by which the decrement of the first of the infinite number of proportionals will be found to be $\frac{1}{m}$ into $q+\frac{1}{2}q^2+\frac{1}{3}q^3+\frac{1}{4}q^4$ &c, which therefore is as the logarithm of the ratio of 1 to $1-q$.

Hence the terms of any ratio being a and b, q becomes $\frac{b-a}{a}$, or the difference divided by the less term, when it is an increasing ratio; or $q=\frac{b-a}{b}$ when the ratio is decreasing or as b to a. Therefore the logarithm of the same ratio may be doubly expressed; for putting x for the difference $b-a$ of the terms, it will be

$$\text{either } \frac{1}{m} \text{ into } \frac{x}{a}-\frac{x^2}{2a^2}+\frac{x^3}{3a^3}-\frac{x^4}{4a^4} \text{ \&c.}$$

$$\text{or } \frac{1}{m} \text{ into } \frac{x}{b}+\frac{x^2}{2b^2}+\frac{x^3}{3b^3}+\frac{x^4}{4b^4} \text{ \&c.}$$

But if the ratio of a to b be supposed divided into two parts, namely,

into the ratio of a to $\frac{1}{2}a + \frac{1}{2}b$ or $\frac{1}{2}z$, and the ratio of $\frac{1}{2}z$ to b, then will the sum of the logarithms of those two ratios, be the logarithms of the ratio of a to b. Now by substituting in the foregoing series, the logarithms of those two ratios will

$$\text{be } \frac{1}{m} \text{ into } \frac{x}{z} + \frac{x^2}{2z^2} + \frac{x^3}{3z^3} + \frac{x^4}{4z^4} + \frac{x^5}{5z^5} \text{ \&c.}$$

$$\text{and } \frac{1}{m} \text{ into } \frac{x}{z} - \frac{x^2}{2z^2} + \frac{x^3}{3z^3} - \frac{x^4}{4z^4} + \frac{x^5}{5z^5} \text{ \&c; and hence the sum,}$$

$$\text{or } \frac{1}{m} \text{ into } \frac{2x}{z} + \frac{2x^3}{3z^3} + \frac{2x^5}{5z^5} + \frac{2x^7}{7z^7} + \frac{2x^9}{9z^9} \text{ \&c.}$$

will be the log. of the ratio of a to b.

Moreover, if from the logarithm of the ratio of a to $\frac{1}{2}z$ be taken that of $\frac{1}{2}z$ to b, we shall have the logarithm of the ratio of ab to $\frac{1}{4}z^2$; and the half of this gives that of $\sqrt{ab}$ to $\frac{1}{2}z$, or of the geometrical mean to the arithmetical mean. And consequently the logarithm of this ratio will be equal to half the difference of that of the above two ratios, and will therefore be $\frac{1}{m}$ into $\frac{x^2}{2z^2} + \frac{x^4}{4z^4} + \frac{x^6}{6z^6} + \frac{x^8}{8z^8}$ &c.

The above series are similar to some that were before given by Newton and Gregory, for the same purpose, deduced from the consideration of the hyperbola. But the rule which is properly our author's own is that which follows, and is derived from the series above given for the logarithm of the sum of two ratios. For the ratio of ab to $\frac{1}{4}z^2$ or $\frac{1}{4}a^2 + \frac{1}{2}ab + \frac{1}{4}b^2$, having the difference of its terms $\frac{1}{4}a^2 - \frac{1}{2}ab + \frac{1}{4}b^2$ or $(\frac{1}{2}b - \frac{1}{2}a)^2$ or $\frac{1}{4}x^2$, which in the case of finding the logarithms of prime numbers is always 1, if we call the sum of the terms $\frac{1}{4}z^2 + ab = y^2$, the logarithm of the ratio of $\sqrt{ab}$ to $\frac{1}{2}a + \frac{1}{2}b$ or $\frac{1}{2}z$ will be found to be

$$\frac{1}{m} \text{ into } \frac{1}{y^2} + \frac{1}{3y^6} + \frac{1}{5y^{10}} + \frac{1}{7y^{14}} + \frac{1}{9y^{18}} \text{ \&c.}$$

And these rules our learned author exemplifies by some cases in numbers, to show the easiest mode of application in practice.

Again, by means of the same binomial theorem he resolves with equal facility the reverse of the problem, namely, from the logarithm given, to find its number or ratio: For, as the logarithm of the ratio of 1 to $1 + q$ was proved to be $(1 + q)^{\frac{1}{m}} - 1$, and that of the ratio of 1 to $1 - q$ to be $\cdots 1 - (1 - q)^{\frac{1}{m}}$; hence, calling the given logarithm L, in the former case it will be $(1 + q)^{\frac{1}{m}} = 1 + L$, and in the latter $(1 - q)^{\frac{1}{m}} = 1 - L$;

$$\left.\begin{array}{l} \text{and therefore } 1 + q = (1 + L)^m \\ \qquad \text{and } 1 - q = (1 - L)^m \end{array}\right\}, \text{ that is, by the binomial theorem,}$$

$$1 + q = 1 + m\text{L} + \tfrac{1}{2}m^2\text{L}^2 + \tfrac{1}{6}m^3\text{L}^3 + \tfrac{1}{24}m^4\text{L}^4 + \tfrac{1}{120}m^5\text{L}^5 \ \&c,$$
$$\text{and } 1 - q = 1 - m\text{L} + \tfrac{1}{2}m^2\text{L}^2 - \tfrac{1}{6}m^3\text{L}^3 + \tfrac{1}{24}m^4\text{L}^4 - \tfrac{1}{120}m^5\text{L}^5 \ \&c.$$

m being any infinite index whatever, differing according to the scale of logarithms, being 1000 &c in Napier's or the hyperbolic logarithms, and 2302585 &c in Briggs's.

If one term of the ratio, of which L is the logarithm, be given, the other term will be easily obtained by the same rule: For if L be Napier's logarithm of the ratio of a the less term, to b the greater, then, according as a or b is given, we shall have,

$$b = a \text{ into } 1 + \text{L} + \tfrac{1}{2}\text{L}^2 + \tfrac{1}{6}\text{L}^3 + \tfrac{1}{24}\text{L}^4 \ \&c.$$
$$a = b \text{ into } 1 - \text{L} + \tfrac{1}{2}\text{L}^2 - \tfrac{1}{6}\text{L}^3 + \tfrac{1}{24}\text{L}^4 \ \&c.$$

Hence, by help of the logarithms contained in the tables, may easily be found the number to any given logarithm to a great extent. For if the small difference between the given logarithm L, and the nearest tabular logarithm, either greater or less, be called l, and the number answering to the tabular logarithm a, when it is less than the given logarithm, but b when greater; it will follow, that the number answering to the logarithm L, will be

$$\text{either } a \text{ into } 1 + l + \tfrac{1}{2}l^2 + \tfrac{1}{6}l^3 + \tfrac{1}{24}l^4 + \tfrac{1}{120}l^5, \ \&c.$$
$$\text{or } b \text{ into } 1 - l + \tfrac{1}{2}l^2 - \tfrac{1}{6}l^3 + \tfrac{1}{24}l^4 - \tfrac{1}{120}l^5, \ \&c.$$

which series converge so quick, l being always very small, that the first two terms $1 \pm l$ are generally sufficient to find the number to 10 places of figures.

Dr. Halley subjoins also an easy approximation for these series, by which it appears, that the number answering to the log. is nearly

$$\frac{1+\frac{1}{2}l}{1-\frac{1}{2}l} \times a \text{ or } \frac{1-\frac{1}{2}l}{1+\frac{1}{2}l} \times b \left\{ \begin{matrix} \text{in Napier's} \\ \text{logs. and} \end{matrix} \right\} \frac{n+\frac{1}{2}l}{n-\frac{1}{2}l} \times a \text{ or } \frac{n-\frac{1}{2}l}{n+\frac{1}{2}l} \times b \left\{ \begin{matrix} \text{in Briggs's} \\ \text{logs.;} \end{matrix} \right.$$

where n is $= 434294481903$ &c $= \dfrac{1}{m}$.

Of Mr. Sharp's Methods.

The labours of Mr. Abraham Sharp, of Little Horton, near Bradford in Yorkshire, in this branch of mathematics, were very great and meritorious. His merit however consisted rather in the improvement and illustration of the methods of former writers, than in the invention of any new ones of his own. In this way he greatly extended and improved Dr. Halley's method, above described, as also those of Mercator and Wallis; illustrating these improvements by extensive calculations, and by them computing table 5 of this book, consisting of the logarithms of all numbers to 100, and of all prime numbers to 1100, each to 61 places. He also composed a neat compendium of the best methods for computing the natural sines, tangents, and secants, chiefly from the rules before given by Newton; and by Newton's or Gregory's series $a = t - \frac{1}{3}t^3 + \frac{1}{5}t^5 - \frac{1}{7}t^7$ &c, for the arc in terms of the tangent, he computed the circumference of the circle to 72 places, namely from the arc of 30 degrees, whose tangent t is $= \sqrt{\frac{1}{3}}$ to the radius 1. Other astonishing instances of his industry and

labour appear in his *Geometry Improv'd* printed in 1717, and signed *A. S. Philomath*, from whence the 5th table of logarithms abovementioned was extracted. This ingenious man was some time assistant at the Royal Observatory to Mr. Flamsteed the first Astronomer Royal; and being one of the most accurate and indefatigable computers that ever existed, he was for many years the common resource for Mr. Flamsteed, Sir Jonas Moore, Dr. Halley, &c, in all intricate and troublesome calculations. He afterwards retired to his native place at Little Horton; where, after a life spent in intense study and calculations, he died the 18th of July 1742, in the 91st year of his age.

Of the Construction of Logarithms by Fluxions.

It appears by the very definition and description given by Napier of his logarithms, as stated in page 42 of this Introduction, that the fluxion of his, or the hyperbolic logarithm, of any number, is a fourth proportional to that number, its logarithm, and unity; or, which is the same, that it is equal to the fluxion of the number divided by the number: For the description shows that $z1 : za$ or $1 :: \dot{z}1$ the fluxion of $z1 : \dot{z}a$, which therefore is $= \frac{\dot{z}1}{z1}$; but $\dot{z}a$ is also equal to the fluxion of the logarithm A &c, by the description; therefore the fluxion of the logarithm is equal to $\frac{\dot{z}1}{z1}$, the fluxion of the quantity divided by the quantity itself. The same thing appears again at art. 2 of that little piece in the appendix to his *Constructio Logarithmorum*, entitled *Habitudines Logarithmorum & suorum naturalium numerorum invicem*, where he observes that, as any greater quantity is to a less, so is the velocity of the increment or decrement of the logarithms at the place of the less quantity, to that at the greater. Now this velocity of the increment or decrement of the logarithms being the same thing as their fluxions, that proportion is this, $x : a ::$ flux. log. a: flux. log. x; hence if a be $= 1$, as at the beginning of the table of numbers, where the fluxion of the logs. is the index or characteristic c, which is also 1 in Napier's or the hyperbolic logarithms, and 43429 &c in Briggs's the same proportion becomes $x : 1 :: c :$ flux. log. x; but the constant fluxion of the numbers is also $\dot{1}$, and therefore that proportion is also this, $x : \dot{x} :: c : \frac{c\dot{x}}{x} =$ the fluxion of the logarithm of x; and in the hyperbolic logarithms, where c is $= 1$, it becomes $\frac{\dot{x}}{x} =$ the fluxion of Napier's or the hyperbolic logarithm of x. This same property has also been noticed by many other authors since Napier's time. And the same or a similar property is evidently true in all the systems of logarithms whatever, namely, that the modulus of the system is to any number, as the fluxion of its logarithm is to the fluxion of the number.

Now from this property, by means of the doctrine of fluxions, are derived other ways for making logarithms, which have been illustrated by many writers on this branch, as Craig, John Bernouilli, and almost all the writers on fluxions. And this method chiefly consists in expanding the reciprocal of the given quantity in an infinite series, then multiplying each term by the fluxion of the said quantity, and lastly taking the fluents of the terms; by which there arises an infinite series of terms for the logarithm sought. So, to find the logarithm of any number N; put any compound quantity for N, as suppose $\frac{n+x}{n}$

then the flux. of the log. or $\frac{\dot{N}}{N}$ being $\frac{\dot{x}}{n+x} = \frac{\dot{x}}{n} - \frac{x\dot{x}}{nn} + \frac{x^2\dot{x}}{n^3} - \frac{x^3\dot{x}}{n^4}$ &c,

the fluents give log. of N or log. of $\frac{n+x}{n} = \frac{x}{n} - \frac{x^2}{2n^2} + \frac{x^3}{3n^3} - \frac{x^4}{4n^4}$ &c.

And writing $-x$ for x gives log. $\frac{n-x}{n} = -\frac{x}{n} - \frac{x^2}{2n^2} - \frac{x^3}{3n^3} - \frac{x^4}{4n^4}$ &c.

Also, because $\frac{n}{n \pm x} = 1 \div \frac{n \pm x}{n}$, or log. $\frac{n}{n \pm x} = 0 - \log. \frac{n \pm x}{n}$,

theref. log. $\frac{n}{n+x} = -\frac{x}{n} + \frac{x^2}{2n^2} - \frac{x^3}{3n^3} + \frac{x^4}{4n^4}$ &c.

and log. $\frac{n}{n-x} = +\frac{x}{n} + \frac{x^2}{2n^2} + \frac{x^3}{3n^3} + \frac{x^4}{4n^4}$ &c.

And by adding and subtracting any of these series, to or from one another, and multiplying or dividing their corresponding numbers, various other series for logarithms may be found, converging much quicker than these do.

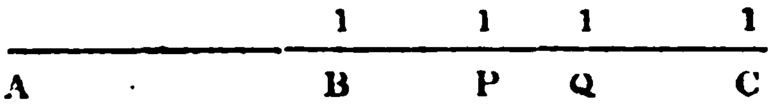
In like manner by assuming quantities otherwise compounded for the value of N, various other forms of logarithmic series may be found by the same means.

Of Mr. Cotes's Logometria.

Mr. Roger Cotes was elected the first Plumian professor of astronomy and experimental philosophy in the university of Cambridge, January 1706, which appointment he filled with the greatest credit, till he died the 5th of June 1716, in the prime of life, having not quite completed the 34th year of his age. His early death was a great loss to the mathematical world, as his genius and abilities were of the brightest order, as is manifested by the specimens of his performance given to the public. Among these are his *Logometria*, first printed in number 338 of the Philosophical Transactions, and afterwards in his *Harmonia Mensuarum*, published in 1722 with his other works, by his relation and successor in the Plumian professorship, Dr. Robert Smith. In this piece he first treats in a general way of

measures of ratios, which measures, he observes, are quantities of any kind whose magnitudes are analogous to the magnitudes of the ratios, these magnitudes mutually increasing and decreasing together in the same proportion. He remarks, that the ratio of equality has no magnitude, because it produces no change by adding and subtracting; that the ratios of greater and less inequality, are of different affections; and therefore if the measure of the one of these be considered as positive, that of the other will be negative; and the measure of the ratio of equality nothing: That there are endless systems of these, which have all their measures of the same ratios proportional to certain given quantities, called *moduli*, which he defines afterwards, and the ratio of which they are the measures, each in its peculiar system, is called the modular ratio, *ratio modularis*, which ratio is the same in all systems. He then adverts to logarithms, which he considers as the *numerical* measures of ratios, and he describes the method of arranging them in tables, with their uses in multiplication and division, raising of powers and extracting of roots, by means of the corresponding operations of addition and subtraction, multiplication and division.

After this introduction, which is only a slight abridgment of the doctrine long before very amply treated of by others, and particularly by Kepler and Mercator, we arrive at the first proposition, which has justly been censured as obscure and imperfect, seemingly through an affectation of brevity, intricacy, and originality, without sufficient room for a display of this qualification. The reasoning in this proposition, such as it is, seems to be something between that of Kepler and the principles of fluxions, to which the quantities and expressions are nearly allied. However, as it is my duty rather to narrate than explain, I shall here exhibit it exactly as it stands. This proposition is to determine the measure of any ratio, as for instance that of AC to AB, and which is effected in this manner: Conceive the difference BC to be divided into innumerable very small particles, as PQ, and



the ratio between AC and AB into as many such very small ratios, as between AQ and AP: then if the magnitude of the ratio between AQ and AP be given, by dividing there will also be given, that of PQ to AP; and therefore, this being given, the magnitude of the ratio between AQ and AP may be expounded by the given quantity $\frac{PQ}{AP}$; for AP remaining constant, conceive the particle PQ to be augmented or diminished in any proportion, and in the same proportion will the magnitude of the ratio between AQ and AP be augmented or diminished: Also, taking any determinate quantity M, the same may be expounded by $M \times \frac{PQ}{AP}$; and therefore the quantity $M \times \frac{PQ}{AP}$ will be the measure of the ratio between AQ and AP. And this measure will have divers magnitudes, and be accommodated to divers systems, ac-

cording to the divers magnitudes of the assumed quantity M, which therefore is called the *modulus* of the system. Now, like as the sum of all the ratios AQ to AP is equal to the proposed ratio AC to AB, so the sum of all the measures $M \times \frac{PQ}{AP}$, found by the known methods, will be equal to the required measure of the said proposed ratio.

The general solution being thus dispatched, from the general expression, Cotes next deduces other forms of the measure, in several corollaries and scholia: as 1st, the terms AP, AQ, approach the nearer to equality as the small difference PQ is less; so that either $M \times \frac{PQ}{AP}$ or $M \times \frac{PQ}{AQ}$ will be the measure of the ratio between AQ and AP, to the modulus M. 2d, That hence the modulus M is to the measure of the ratio between AQ and AP, as either AP or AQ is to their difference PQ. 3d, The ratio between AC and AB being given, the sum of all the $\frac{PQ}{AP}$ will be given; and the sum of all the $M \times \frac{PQ}{AP}$ is as M: therefore the measure of any given ratio, is as the modulus of the system from which it is taken. 4th, Therefore, in every system of measures, the modulus will always be equal to the measure of a certain determinate and immutable ratio; which therefore he calls the modular ratio. 5th, To illustrate the solution by an example: let z be any determinate and permanent quantity, x a variable or indeterminate quantity, and $\dot{x}$ its fluxion; then, to find the measure of the ratio between $z+x$ and $z-x$, put this ratio equal to the ratio between y and 1, expounding the number y by AP, its fluxion $\dot{y}$ by PQ, and 1 by AB: then the fluxion of the required measure of the ratio between y and 1 is $M \times \frac{\dot{y}}{y}$. Now, for y, restore its val. $\frac{z+x}{z-x}$, and for $\dot{y}$ the flux. of that value, $\frac{2z\dot{x}}{(z-x)^2}$, so shall the flux. of the measure become $2M \times \frac{z\dot{x}}{zz-xx}$, or $2M$ into $\frac{\dot{x}}{z} + \frac{\dot{x}x^2}{z^3} + \frac{\dot{x}x^4}{z^5}$ &c. and therefore that measure will be $2M$ into $\frac{x}{z} + \frac{x^3}{2z^3} + \frac{x^5}{5z^5}$ &c.

In like manner the measure of the ratio between $1+v$ and 1 will be found to be - - - - M into $v - \frac{1}{2}v^2 + \frac{1}{3}v^3 - \frac{1}{4}v^4$ &c. And hence, to find the number from the logarithm given, he reverts the series in this manner: If the last measure be called m, we

$$\text{shall have } \frac{m}{M} \text{ or } Q = v - \tfrac{1}{2}v^2 + \tfrac{1}{3}v^3 - \tfrac{1}{4}v^4 + \tfrac{1}{5}v^5 \text{ \&c,}$$
$$\text{therefore } Q^2 = \text{ - } v^2 - v^3 + \tfrac{11}{12}v^4 - \tfrac{5}{6}v^5 \text{ \&c,}$$
$$\text{and } Q^3 = \text{ - - - } v^3 - \tfrac{3}{2}v^4 + \tfrac{7}{4}v^5 \text{ \&c,}$$
$$\text{and } Q^4 = \text{ - - - - - } v^4 - 2v^5 \text{ \&c,}$$
$$\text{and } Q^5 = \text{ - - - - - - - } v^5 \text{ \&c;}$$

then, by adding continually, we shall have,

$$Q + \tfrac{1}{2}Q^2 = v - \tfrac{1}{6}v^3 + \tfrac{5}{24}v^4 - \tfrac{13}{60}v^5 \text{ \&c,}$$
$$Q + \tfrac{1}{2}Q^2 + \tfrac{1}{6}Q^3 = v - \tfrac{1}{24}v^4 + \tfrac{3}{40}v^5 \text{ \&c,}$$
$$Q + \tfrac{1}{2}Q^2 + \tfrac{1}{6}Q^3 + \tfrac{1}{24}Q^4 = v - \tfrac{1}{120}v^5 \text{ \&c,}$$
$$Q + \tfrac{1}{2}Q^2 + \tfrac{1}{6}Q^3 + \tfrac{1}{24}Q^4 + \tfrac{1}{120}Q^5 = v \text{ \&c,}$$

that is $v = Q + \frac{1}{2}Q^2 + \frac{1}{6}Q^3 + \frac{1}{24}Q^4 + \frac{1}{120}Q^5$ &c. And therefore the required ratio of $1 + v$ to 1, is equal to the ratio of $1 + Q + \frac{1}{2}Q^2$ &c to 1. Put now $m = M$, or $Q = 1$, and the above will become the ratio of $1 + \frac{1}{1} + \frac{1}{2} + \frac{1}{6} + \frac{1}{24} + \frac{1}{120}$ &c to 1, for the constant modular ratio. In like manner, if the ratio between 1 and $1 - v$ be proposed, the measure of this ratio will come out M into $v + \frac{1}{2}v^2 + \frac{1}{3}v^3 + \frac{1}{4}v^4$ &c; which being called m, and $\frac{m}{M} = Q$, that ratio will be the ratio of 1 to $1 - Q + \frac{1}{2}Q^2 - \frac{1}{6}Q^3 + \frac{1}{24}Q^4$ &c. And hence, taking $m = M$, or $Q = 1$, the said modular ratio will also be the ratio of 1 to $1 - \frac{1}{1} + \frac{1}{2} - \frac{1}{6} + \frac{1}{24} - \frac{1}{120}$ &c. And the former of these expressions, for the modular ratio, comes out the ratio of 2,718281828459 &c to 1, and the latter the ratio of 1 to 0,367879441171 &c, which number is the reciprocal of the former.

In the 2d prop. the learned author gives directions for constructing Briggs's canon of logarithms, namely, first by the general series 2M into $\frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5}$ &c, finding the logarithms of a few such ratios as that of 126 to 125, 225 to 224, 2401 to 2400, 4375 to 4374, &c, from whence the logarithm of 10 will be found to be 2,302585092994 &c, when M is 1; but since Briggs's log. of 10 is 1, therefore as 2,302585 &c is to the modulus 1, so is 1 (Briggs's log. of 10) to 0,434294481903 &c, which therefore is the modulus of Briggs's logarithms. Hence he deduces the logarithms of 7, 5, 3, and 2. In like manner are the logarithms of other prime numbers to be found, and from them the logarithms of composite numbers by addition and subtraction only.

Cotes then remarks, that the first term of the general series 2 M into $\frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5}$ &c, will be sufficient for the logarithms of intermediate numbers between those in the table, or even for numbers beyond the limits of the table. Thus, to find the logarithm answering to an intermediate number; let a and e be two numbers, the one the given number, and the other the nearest tabular number, a being the greater, and e the less of them; put $z = a + e$ their sum, $x = a - e$ their difference, $\lambda =$ the logarithm of the ratio of a to e, that is the excess of the logarithm of a above that of e: so shall the said difference of their logarithms be $\lambda = 2M \times \frac{x}{z}$ very nearly. And, if there be required the number answering to any given intermediate logarithm, because λ is $= \frac{2Mx}{z} = \frac{2Mx}{2a-}$ or $\frac{2Mx}{2e+x}$, therefore $x = \frac{\lambda a}{M + \frac{1}{2}\lambda}$ or $\frac{\lambda e}{M - \frac{1}{2}\lambda}$ very nearly.

In the 3d prop. the ingenious author teaches how to convert the canon of logarithms into logarithms of any other system, by means of their *moduli*. And, in several more propositions, he exemplifies the canon of logarithms in the solution of various important problems in geometry and physics; such as the quadrature of the hyperbola, the description of the logistica, the equi-angular spiral, the nautical meridian, &c; the descent of bodies in resisting mediums, the density of the atmosphere at any altitude, &c, &c.

Of Dr. Taylor's Construction of Logarithms.

Dr. Brook Taylor (a very learned mathematician, and secretary to the Royal Society, who died at Somerset-house, Nov. 1731) gave the following method of constructing logarithms, in number 352 of the Philosophical Transactions. His method is founded on these three considerations: 1st, that the sum of the logarithms of any two numbers is the logarithm of the product of those numbers; 2d, that the logarithm of 1 is nothing, and consequently that the nearer any number is to 1, the nearer will its logarithm be to 0; 3d, that the product of two numbers or factors, of which the one is greater, and the other less than 1, is nearer to 1 than that factor is which is on the same side of 1 with itself; so of the two numbers $\frac{2}{3}$ and $\frac{4}{3}$, the product $\frac{8}{9}$ is less than 1, but yet nearer to it than $\frac{2}{3}$ is, which is also less than 1. On these principles he founds the present approximation, which he explains by the following example. To find the relation between the logarithms of 2 and 10: In order to this, he assumes two fractions, as $\frac{128}{100}$ and $\frac{8}{10}$, or $\frac{2^7}{10^2}$ and $\frac{2^3}{10}$, whose numerators are powers of 2, and their denominators powers of 10, the one fraction being greater and the other less than unity or 1. Having set these two down, in the form of decimal fractions, below each other, in the first column of the following table, and in the second column A and B for their logarithms, expressing by an equation how

1,28000000000	A = . . =	7l2 −	2l10	l2 > 0,28
0,80000000000	B = . . =	3l2 −	l10	< 0,33
1,02400000000	C = A + B =	10l2 −	3l10	> 0,300
0,990352031429	D = B + 9C =	93l2 −	28l10	< 0,30107
1,004336277664	E = C + 2D =	169l2 −	59l10	> 0,301020
0,998959536107	F = D + 2E =	485l2 −	146l10	< 0,3010309
1,000162894165	G = E + 4F =	2136l2 −	643l10	> 0,30102996
0,999936281874	H = F + 6G =	13301l2 −	4004l10	< 0,301029997
1,000035441215	I = G + 2H =	28738l2 −	8651l10	> 0,3010299951
0,999971720830	K = H + I =	42039l2 −	12655l10	< 0,3010299959
1,000007161046	L = I + K =	70777l2 −	21306l10	> 0,30102999562
0,99999389[illegible]3514	M = K + 3L =	254370l2 −	76573l10	< 0,30102999567
1,000000364511	N = L + M =	325147l2 −	97879l10	> 0,301029995663[illegible]
0,999999764687	O = M + 18N =	6107016l2 −	1838335l10	< 0,301029995664[illegible]
comp ar 235313				
P = 364511O + 235313N =		2302585825187l2 −	693147400972l10	> 0,30102999566[illegible]

they are composed of the logarithms of 2 and 10, the numbers in question, those logarithms being denoted thus, $l2$ and $l10$. Then multiplying the two numbers in the first column together, there is produced a third number 1,024, against which is written C, for its logarithm, expressing likewise by an equation in what manner C is formed of the foregoing logarithms A and B. And in the same manner the calculation is continued throughout; only observing this compendium, that before multiplying the two last numbers already entered in the table, to consider what power of one of them must be used to bring the product the nearest that can be to unity. Now after having continued the table a little way, this is found by only dividing the differences of the numbers from unity one by the other, and taking the nearest quotient for the index of the power sought. Thus the second and third numbers in the table being 0,8 and 1,024, their differences from unity are 0,200 and 0,024; hence 0,200 ÷ 0,024 gives 9 for the index; and therefore multiplying the 9th power of 1,024 by 0,8 produces the next number 0,990352031429, whose logarithm is $D = B + 9C$.

When the calculation is continued in this manner till the numbers become small enough, or near enough to 1, the last logarithm is supposed equal to nothing, which gives an equation expressing the relation of the logarithms, and from thence the required logarithm is determined. Thus, supposing $G = 0$, we have $2136l2 - 643l10 = 0$, and hence, because the logarithm of 10 is 1, we obtain $l2 = \frac{643}{2136} = 0{,}30102996$, too small in the last figure only; which so happens, because the number corresponding to G is greater than 1. And in this manner are all the numbers in the third or last column obtained, which are continual approximations to the logarithm of 2.

There is another expedient, which renders this calculation still shorter, and it is founded on this consideration: that when x is small, $(1+x)^n$ is nearly $= 1 + nx$. Hence if $1+x$ and $1-z$ be the two last numbers already found in the first column of the table, the product of their powers $(1+x)^m \times (1-z)^n$ will be nearly $= 1$; and hence the relation of m and n may be thus found, $(1+x)^m \times (1-z)^n$ is nearly $= (1+mx) \times (1-nz) = 1 + mx - nz - mnxz = 1 + mx - nz$ nearly, which being also $= 1$ nearly, therefore $m : n :: z : x :: l.(1-z) : l.(1+x)$; whence $xl.(1-z) + zl.(1+x) = 0$. For example, let 1,024 and 0,990352 be the last numbers in the table, their logarithms being C and D: here we have $1{,}024 = 1 + x$, and $0{,}990352 = 1 - z$; consequently, $x = 0{,}024$, and $z = 0{,}009648$, and hence the ratio $\frac{z}{x}$ in small numbers is $\frac{201}{500}$. So that, for finding the logarithms proposed, we may take $500D + 201C = 48510l2 - 14603l10$

$=0$; which gives $l2=0,3010307$. And in this manner are found the numbers in the last line of the table.

Of Mr. Long's Method.

In number 339 of the Philosophical Transactions, are given a brief table and method for finding the logarithm to any number, and the number to any logarithm, by Mr. John Long, B. D. Fellow of C. C. C. Oxon. This table and method are similar to those described in chap. 14, of Briggs's *Arith. Logar.* differing only in this, that in this table, by Mr. Long, the logarithms, in each class, are in arithmetical progression, the common difference being 1; but in Briggs's little table, the column of natural numbers has the like common difference. The table consists of eight classes of logarithms, and their corresponding numbers, as follow:

Lo	Nat. Numb.	Log.	Nat. Numb.	Log.	Nat. Numb.	Log.	Nat. Numb.
,9	7,943282347	,009	1,020939484	,00009	1,000207254	,0000009	1,000002072
,8	6,309573445	8	1,018591388	8	1,000184224	8	1,000001842
,7	5,011872336	7	1,016248694	7	1,000161194	7	1,000001611
,6	3,981071706	6	1,013911386	6	1,000138165	6	1,000001381
,5	3,162277660	5	1,011579454	5	1,000115136	5	1,000001151
,4	2,511886432	4	1,009252886	4	1,000092106	4	1,000000921
,3	1,995262315	3	1,006931669	3	1,000069080	3	1,000000690
,2	1,584893193	2	1,004615794	2	1,000046053	2	1,000000460
,1	1,258925412	1	1,002305238	1	1,000023026	1	1,000000230
,09	1,230268771	,0009	1,002074475	,000009	1,000020724	,00000009	1,000000207
8	1,202264435	8	1,001843766	8	1,000018421	8	1,000000184
7	1,174897555	7	1,001613109	7	1,000016118	7	1,000000161
6	1,148153621	6	1,001382506	6	1,000013816	6	1,000000138
5	1,122018454	5	1,001151956	5	1,000011513	5	1,000000115
4	1,096478196	4	1,000921459	4	1,000009210	4	1,000000092
3	1,071519305	3	1,000691015	3	1,000006908	3	1,000000069
2	1,047128548	2	1,000460623	2	1,000004605	2	1,000000046
1	1,023292992	1	1,000230285	1	1,000002302	1	1,000000023

where, because the logarithms in each class are the continual multiples 1, 2, 3, &c. of the lowest, it is evident that the natural numbers are so many scales of geometrical proportionals, the lowest being the common ratio, or the ascending numbers are the 1, 2, 3, &c, powers of the lowest, as expressed by the figures 1, 2, 3, &c, of their corresponding logarithms. Also the last number in the first, second, third, &c, class, is the 10th, 100th, 1000th, &c, root of 10; and any number in any class is the 10th power of the corresponding number in the next following class.

To find the logarithm of any number, as suppose of 2000, by this table, look in the first class for the number next less than the first figure 2, and it is 1,995262315, against which is 3 for the first figure of the logarithm sought. Again, dividing 2, the number

proposed, by 1,995262315, the number found in the table, the quotient is 1,002374467; which being looked for in the second class of the table, and finding neither its equal nor a less, 0 is therefore to be taken for the second figure of the logarithm; and the same quotient 1,002374467 being looked for in the third class, the next less is there found to be 1,002305238, against which is 1 for the third figure of the logarithm; and dividing the quotient 1,002374467 by the said next less number 1,002305238, the new quotient is 1,000069070; which being sought in the fourth class gives 0, but sought in the fifth class gives 2, which are the fourth and fifth figures of the logarithm sought: again, dividing the last quotient by 1,000046053, the next less number in the table, the quotient is 1,000023015, which gives 9 in the 6th class for the 6th figure of the logarithm sought: and again dividing the last quotient by 1,000020724, the next less number, the quotient is 1,000002291, the next less than which, in the 7th class, gives 9 for the 7th figure of the logarithm: and dividing the last quotient by 1,000002072, the quotient is 1,000000219, which gives 9 in the 8th class for the 8th figure of the logarithm: and again the last quotient 1,000000219, being divided by 1,000000207, the next less, the quotient 1,000000012 gives 5 in the same 8th class, when one figure is cut off, for the 9th figure of the logarithm sought. All which figures collected together give 3,301029995 for Briggs's logarithm of 2000, the index 3 being supplied; which logarithm is true in the last figure.

3	1,995262315
0	0
1	1,002305238
0	0
3	1,000069080
0	0
0	0

To find the number answering to any given logarithm, as suppose to 3,30101300: omitting the characteristic, against the other figures 3, 0, 1, 0, 3, 0, 0, as in the first column in the margin, are the several numbers as in the 2d column, found from their respective 1st, 2d, 3d, &c classes; the effective numbers of which multiplied continually together, the last product is 2,000000019966, which, because the characteristic is 3, gives 2000,000019966, or 2000 only, for the required number, answering to the given logarithm.

Of Mr. Jones's Method.

In the 61st volume of the Philosophical Transactions, is a small paper on logarithms, which had been drawn up, and left unpublished by the learned and ingenious William Jones, Esq. The method contained in this memoir, depends on an application of the doctrine of fluxions, to some properties drawn from the nature of the exponents of powers. Here all numbers are considered as some certain powers of a constant determinate root: so, any number x may be considered as the z power of any root r, or that $x=r^z$ is a general expression for all numbers, in terms of the constant root r, and a variable exponent z. Now the index z being the logarithm of the number x, therefore, to find this logarithm, is the same thing, as to find what power of the radical r is equal to the number x.

From this principle, the relation between the fluxions of any number, x, and its logarithm z, is thus determined; Put $r=1+n$; then is $x=r^{z}=(1+n)^{z}$, and $x+\dot{x}=(1+n)^{z+\dot{z}}=(1+n)^{z}\times(1+n)^{\dot{z}}=x\times(1+n)^{\dot{z}}$, which by expanding $(1+n)^{\dot{z}}$, omitting the 2d, 3d, &c powers of $\dot{z}$, and writing q for $\frac{n}{1+n}$, becomes

$x+x\dot{z}\times:q+\frac{1}{2}q^{2}+\frac{1}{3}q^{3}+\frac{1}{4}q^{4}$ &c;

therefore $\dot{x}=ax\dot{z}$, putting a for the series $q+\frac{1}{2}q^{2}+\frac{1}{3}q^{3}$ &c,

or $f\dot{x}=x\dot{z}$, putting $f=\frac{1}{a}$.

Now when $r=1+n=10$, as in the common logarithms of Briggs's form; then $n=9$, $q=,9$, and the series $q+\frac{1}{2}q^{2}+\frac{1}{3}q^{3}$ &c, gives $a=2,302585$ &c, and therefore its reciprocal $f=,434294$ &c. But if $a=1=f$, the form will be that of Napier's logarithms.

From the above form $x\dot{z}=f\dot{x}$, or $\dot{z}=\frac{f\dot{x}}{x}$, are then deduced many curious and general properties of logarithms, with the several series heretofore given by Gregory, Mercator, Wallis, Newton, and Halley. But of all these series, that one which our author selects for constructing the logarithms, is this, putting $N=\frac{r-p}{r+p}$, the logarithm of $\frac{r}{p}$ is $=2f\times:N+\frac{1}{3}N^{3}+\frac{1}{5}N^{5}+\frac{1}{7}N^{7}$ &c, in the case in which $r-p$ is $=1$, and consequently in that case $N=\frac{1}{2r-1}$ or $\frac{1}{2p+1}$; which series will then converge very fast.

Hence, having given any numbers, p, q, r, &c, and as many ratios a, b, c, &c, composed of them, the difference between the two terms of each ratio being 1; as also the logarithms A, B, C, &c of those ratios given: to find the logarithms P, Q, R, &c of those numbers; supposing $f=1$. For instance, if $p=2$, $q=3$, $r=5$; and $a=\frac{9}{8}=\frac{3^{2}}{2^{3}}$, $b=\frac{16}{15}=\frac{2^{4}}{3.5}$, $c=\frac{25}{24}=\frac{5^{2}}{3.2^{3}}$. Now the logarithms A, B, C, of these ratios a, b, c, being found by the above series, from the nature of powers we have these three equations,

$$\left.\begin{array}{l}A=2Q-3P\\ B=4P-Q-R\\ C=2R-Q-3P\end{array}\right\}\text{which equations reduced give}\left\{\begin{array}{l}P=3A+4B+2C=\text{log. of }2.\\ Q=5A+6B+3C=\text{log. of }3.\\ R=7A+9B+5C=\text{log. of }5.\end{array}\right.$$

And hence $P+R=10A+13B+7C$ is $=$ the logarithm of 2×5 or 10.

An elegant tract on logarithms, as a comment on Dr. Halley's method, was also given by Mr. Jones, in his *Synopsis Palmariorum Matheseos*, published in the year 1706. And, in the Philosophical Transactions, he communicated various improvements in goniome-

trical properties, and the series relating to the circle and to trigonometry.

The memoir above described was delivered to the Royal Society by their then librarian, Mr. John Robertson, a worthy, ingenious, and industrious man; who also communicated to the Society several little tracts of his own relating to logarithmical subjects; he was also the author of an excellent Treatise on the Elements of Navigation in two volumes; and he was successively mathematical master to Christ's hospital in London; to the royal naval academy at Portsmouth; and librarian, clerk, and house-keeper to the Royal Society; at whose house, in Crane-Court, Fleet-Street, he died in 1776, aged 64 years.

And among the papers of Mr. Robertson, I have, since his death, found one containing the following particulars relating to Mr. Jones, which I here insert, as I know of no other account of his life, &c, and as any true anecdotes of such extraordinary men must always be acceptable to the learned. This paper is not in Mr. Robertson's hand writing, but in a kind of running law-hand, and is signed R. M. 10 Sept. 1771.

"William Jones, Esq. F. R. S. was born at the foot of Bodavon mountain [Mynydd Bodafon], in the parish of Llansihangel tre'r Bardd, in the isle of Anglesey, North Wales, in the year 1675. His father John George * was a farmer of a good family, being descended from Hwfa ap Cynddelw, one of the fifteen tribes of North Wales. He gave his two sons the common school education of the country, reading, writing, and accounts, in English, and the Latin grammar. Harry his second son took to the farming business; but William the eldest, having an extraordinary turn for mathematical studies, determined to try his fortune abroad from a place where the same was but of little service to him; he accordingly came to London, accompanied by a young man, Rowland Williams, afterwards an eminent perfumer in Wych-Street. The report in the country is, that Mr. Jones soon got into a merchant's counting-house, and so gained the esteem of his master, that he gave him the command of a ship for a West-India voyage; and that upon his return he set up a mathematical school, and published his book of navigation †; and that upon the death of the merchant he married his widow: that Lord Macclesfield's son being his pupil, he was made secretary to the chancellor, and one of the D. tellers of exchequer—and they have a story of an Italian wedding which caused great disturbance in Lord Macclesfield's family, but compromised by Mr. Jones; which

* "It is the custom in several parts of Wales for the name of the father to become the surname of his children. John George the father was commonly called Sion Siors of Llambabo, to which parish he moved, and where his children were brought up."

† This tract on navigation, entitled, "A new Compendium of the whole Art of Practical Navigation," was published in 1702, and dedicated "to the reverend and learned Mr. John Harris, M. A. and F. R. S." the author, I apprehend, of the "Universal Dictionary of Arts and Sciences," under whose roof Mr. Jones says he composed the said treatise on Navigation.

gave rise to a saying, that Macclesfield was the making of Jones, and Jones the making of Macclesfield."

Mr. Jones died July 3, 1749, being vice-president of the Royal Society: and left one daughter, and a son, born in 1748, who was the late Sir William Jones, one of the judges in India, and highly esteemed for his great abilities and extensive learning; and who died in India, in the year 1794.

Euler's method given in his Introd. in Anal. Infinit. is much the same, in manner and effect, as that of Mr. Jones, given above.

Of Mr. Andrew Reid and Others.

Andrew Reid, Esq. published in 1767 a quarto tract, under the title of *An Essay on Logarithms*, in which he also shows the computation of logarithms from principles depending on the binomial theorem and the nature of the exponents of powers, the logarithms of numbers being here considered as the exponents of the powers of 10. He hence brings out the usual series for logarithms, and largely exemplifies Dr. Halley's most simple construction.

Besides the authors whose methods have been here particularly described, many others have treated on the subject of logarithms, and of the sines, tangents, secants, &c; among the principal of whom are Leibnitz, Euler, Maclaurin, Wolfius, and professor Simson in an elegant geometrical tract on logarithms, contained in his posthumous works, elegantly printed in 4to. at Glasgow, in the year 1776, at the expense of the very learned Earl Stanhope, and by his Lordship disposed of in presents among gentlemen most eminent for mathematical learning.

Of Mr. Dodson's Anti-logarithmic Canon.

The only remaining considerable work of this kind published, that I know of, is the Anti-logarithmic Canon of Mr. James Dodson, an ingenious mathematician, and sometime master of the Royal Mathematical School, in Christ's Hospital, London: which work he published in folio in the year 1742: a very great performance, containing all logarithms under 100000, and their corresponding natural numbers to 11 places of figures, with all their differences and the proportional parts; the whole arranged in the order contrary to that used in the common tables of numbers and logarithms, the exact logarithms being here placed first, and increasing continually by 1, from 1 to 100000, with their corresponding nearest numbers in the columns opposite to them; and by means of the differences and proportional parts, the logarithm to any number, or the number to any logarithm, each to 11 places of figures, is readily found. This work contains also, besides the construction of the natural numbers to the given logarithms, "precepts and examples, showing some of the uses of logarithms, in facilitating the most difficult operations in common arithmetic, cases of interest, annuities, mensuration, &c; to which is prefixed an introduction, containing a short account of logarithms, and of the most considerable improvements made, since their invention, in the manner of constructing them."

The manner in which these numbers were constructed, consists chiefly in imitations of some of the methods before described by Briggs, and is nothing more than generating a scale of 100000 geometrical proportionals, from 1 the least term to 10 the greatest, each continued to 11 places of figures; and the means of effecting this, are such as easily flow from the nature of a series of proportionals, and are briefly as follow. First, between 1 and 10, are interposed 9 mean proportionals; then between each of these 11 terms there are interposed 9 other means, making in all 101 terms; then between each of these a 3d set of 9 means, making in all 1001 terms; again between each of these a 4th set of 9 means, making in all 10001 terms; and lastly, between each two of these terms, a 5th set of 9 means, making in all 100001 terms, including both the 1 and the 10. The first four of these 5 sets of means, are found each by one extraction of the 10th root of the greater of the two given terms, which root is the least mean, and then multiplying it continually by itself according to the number of terms in the section or set; and the 5th or last section is made by interposing each of the 9 means by help of the method of differences before taught. Namely, putting 10 the greatest term

$= A$, $A^{\frac{1}{10}} = B$, $B^{\frac{1}{10}} = C$, $C^{\frac{1}{10}} = D$, $D^{\frac{1}{10}} = E$, and $E^{\frac{1}{10}} = F$; now extracting the 10th root of A or 10, it gives $1{,}2589254118 = B = A^{\frac{1}{10}}$ for the least of the 1st set of means; and then multiplying it continually by itself, we have B, B^2, B^3, B^4, &c, to $B^{10} = A$, for all the 10 terms: 2dly, the 10th root of 1,2589254118 gives $1{,}0232929923 = C = B^{\frac{1}{10}} = A^{\frac{1}{100}}$, for the least of the 2d class of means, which being continually multiplied gives C, C^2, C^3, &c, to $C^{100} = B^{10} = A$ for all the 2d class of 100 terms: 3dly, the 10th root of 1,0232929923 gives $1{,}0023052381 = D = C^{\frac{1}{10}} = B^{\frac{1}{100}} = A^{\frac{1}{1000}}$ for the least of the 3d class of means, which being continually multiplied, gives D, D^2, D^3, &c, to $D^{1000} = C^{100} = B^{10} = A$ for the 3d class of 1000 terms: 4thly, the 10th root of 1,0023052381 gives $1{,}0002302850 = E = D^{\frac{1}{10}} = C^{\frac{1}{100}} = B^{\frac{1}{1000}} = A^{\frac{1}{10000}}$ for the least of the 4th class of means, which being continually multiplied, gives E, E^2, E^3, &c, to $E^{10000} = D^{1000} = C^{100} = B^{10} = A$ for the 4th class of 10000 terms. Now these 4 classes of terms, thus produced, require no less than 11110 multiplications of the least means by themselves: which however are much facilitated by making a small table of the first 10 or even 100 products of the constant multiplier, and from thence only taking out the proper lines and adding them together: and these 4 classes of numbers always prove themselves at every 10th term, which must always agree with the corresponding successive terms of the preceding class. The remaining 5th class is constructed by means of differences, being much easier than the method of continual multiplication, the 1st and 2d differences only being used, as the 3d difference is too small to enter the computation of the sets of 9 means between each two terms of the 4th class.

And the several 2d differences for each of these sets of 9 means, are found from the properties of a set of proportionals 1, r, r^2, r^3, &c, as disposed in the 1st column of the annexed table, and their several orders of differences as in the other columns of the table; where it is evident that each column, both

Terms	1st dif.	2d dif.	3d dif.	&c
$1\times$	$(r-1)\times$	$(r-1)^2\times$	$(r-1)^3\times$	
1	1	1	1	
r	r	r	r	&c.
r^2	r^2	r	r^2	
r^3	r^3	r,	r^3	
&c.	&c.	&c.	&c	

that of the given terms of the progression, and those of their orders of differences, forms a scale of proportionals, having the same common ratio r, and that each horizontal line, or row, forms a geometrical progression, having all the same common ratio $r-1$, which is also the 1st difference of each set of means; so $(r-1)^2$ is the 1st of the 2d differences, and which is constantly the same, as the 3d differences become too small in the required terms of our progression to be regarded, at least near the beginning of the table: hence, like as 1, $r-1$, and $(r-1)^2$ are the first term, with its 1st and 2d differences; so r^n, $r^n(r-1)$, and $r^n(r-1)^2$, are any other term with its 1st and 2d differences. And by this rule the 1st and 2d differences are to be found for every set of 9 means, viz, multiplying the 1st term of any class (which will be the several terms of the series E, E^2, E^3, &c, or every 10th term of the series F, F^2, F^3, &c), by $r-1$ or $F-1$ for the 1st difference, and this multiplied by $F-1$ again, for the true 2d difference at the beginning of that class. Thus, the 10th root of 1,0002302850 or E gives 1,000023026116 for F, or the 1st mean of the lowest class, therefore $F-1 = r-1 =$,000023026116 is its 1st difference, and the square of it is $(r-1)^2$ $=$,00000000053O2 its 2d difference; then is ,000023026116F^{10n} or ,000023026116E^n the 1st difference, and ,00000000053O2F^{20n}, or 00000000053O2E^{2n} is the 2d difference at the beginning of the nth class of decades. And this 2d difference is used as the constant 2d difference through all the 10 terms, except towards the end of the table, where the differences increase fast enough to require a small correction of the 2d difference, which Mr. Dodson effects by taking a mean 2d difference among all the 2d differences, in this manner; having found the series of 1st differences $(F-1)E^n$, $(F-1)E^{n+1}$, $(F-1)E^{n+2}$, &c, take the differences of these, and $\frac{1}{10}$ of them will be the mean 2d differences to be used, namely, $\frac{F-1}{10}(E^{n+1}-E^n)$, $\frac{F-1}{10}(E^{n+2}-E^{n+1})$, &c, are the mean 2d differences. And this is not only the more exact, but also the easier way. The common 2d difference, and the successive 1st differences, are then continually added, through the whole decade, to give the successive terms of the required progression.

DESCRIPTION AND USE

OF

LOGARITHMIC TABLES.

THOUGH the nature and construction of logarithms have been pretty fully treated in the preceding history of such numbers, where the more learned and curious reader will find abundant satisfaction, I shall here give a brief, easy, and familiar idea of these matters, for the practical use of young students in this subject.

The Definition and Notation of Logarithms.

Logarithms may be considered the indices or arithmetical series of numbers, adapted to the terms of a geometrical series, in such sort that 0 corresponds to 1, or is the index of it, in the geometricals.

Thus	0	1	2	3	4	5,	&c,	indices or logarithms,
	1	2	4	8	16	32,	&c,	geometric progression.
or	0	1	2	3	4	5,	&c,	indices or logarithms,
	1	3	9	27	81	243,	&c,	geometric series.
or	0	1	2	3	4	5,	&c,	indices or logarithms,
	1,	10,	100,	1000,	10000,	100000,	&c,	geometric series.

Where the same indices serve equally for any geometric series; and from which it is evident, that there may be an endless variety of systems of logarithms to the same common numbers, by varying the 2d term, 2, or 3, or 10, &c, of the geometric series; as this will change the original series of terms, whose indices are the integer numbers, 1, 2, 3, &c; then by interpolation the whole system of numbers may be made to enter the geometrical series, and receive their proportional logarithms, whether integers or decimals.

Or, the logarithm of any number is the index of that power of some other number, which is equal to the given number. So, if N be $= r^n$, then the logarithm of N is n, which may be either positive or negative, and r any number whatever, according to the different systems of logarithms. When N is 1, then $n = 0$, whatever the value of r is; and consequently the logarithm of 1 is always 0 in every system of logarithms. When n is $= 1$, then N is $= r$: consequently r is always the number whose logarithm is 1, in every system. When r is $= 2{\cdot}718281828459$ &c, the indices are the hyperbolic logarithms, such as in our 7th table: so that n is the hyperbolic logarithm of $(2{\cdot}718 \text{ \&c})^n$. But in the common logarithms, r

is $= 10$; so that the common logarithm of any number (10^n) is (n) the index of that power of 10 which is equal to the said number. So 1000, being the 3d power of, 10, has 3 for its logarithm; and if 50 be $= 10^{1\cdot69897}$, then is 1·69897 the common logarithm of 50. And hence it follows, that this decupal series of terms

	10^4,	10^3,	10^2,	10^1,	10^0,	10^{-1},	10^{-2},	10^{-3},	10^{-4},
or	10000,	1000,	100,	10,	1,	·1,	·01,	·001,	·0001,
have	4,	3,	2,	1,	0,	-1,	-2,	-3,	-4,

respectively for their logarithms.

The logarithm of a number comprehended between any two terms of the first series, is included between the two corresponding terms of the latter, and therefore that logarithm will consist of the same index (whether positive or negative) as the less of those two terms, together with a decimal fraction, which will always be positive. So the number 50, falling between 10 and 100, its logarithm will fall between 1 and 2, and is $=$ 1·69897, the index of the less term, together with the same decimal ·69897 as before: also the number ·05, falling between the terms ·1 and ·01, its logarithm will fall between -1 and -2, and is indeed $= -2 + \cdot69897$, the index of the less term together with still the same decimal ·69897. The index is also called the characteristic of the logarithms, and is always an integer, either positive or negative, or else $= 0$; and it shows what place is occupied by the first significant figure of the given number, either above or below the place of units, being in the former case + or positive, in the latter $-$ or negative.

When the characteristic of a logarithm is negative, the sign $-$ is commonly set over it, to distinguish it from the decimal part, which being the logarithm found in the tables, is always positive: so $-2 + \cdot69897$, or the logarithm of ·05, is written thus $\bar{2}\cdot69897$. But on some occasions it is convenient to reduce the whole expression to a negative form; which is done by making the characteristic figure less by 1, and taking the arithmetical complement of the decimal, that is, beginning at the left hand, subtract each figure from 9, except the last significant figure, which subtract from 10; so shall the remainders form the logarithm entirely negative. Thus the logarithm of ·05, which is $\bar{2}\cdot69897$, or $-2 + \cdot69897$, is also expressed by $-1\cdot30103$, which is wholly negative. It is also sometimes thought more convenient to express such logarithms wholly as positive, namely, by only joining to the tabular decimal the complement of the index to 10: in which way the above logarithm is expressed by 8·69897; which is only increasing the indices in the scale by 10. It is also convenient, in many operations with logarithms, to take their arithmetical complements, which is done, as above mentioned, by beginning at the left hand, and subtracting every figure from 9, but the last figure from 10: so the arithmetical complement

of 1·69897	and of 2·69807	where the index -2, being negative,
is 8·30103	it is 11·30103	is added to 9, and makes 11.

The Properties of Logarithms.

From the definition of logarithms, either as being the indices of a series of geometricals, or as the indices of the powers of the same root, it follows, that the multiplication of the numbers will answer to the addition of their logarithms; the division of numbers, to the subtraction of their logarithms; the raising of powers, to the multiplying the logarithm of the root by the index of the power; and the extracting of roots, to the dividing the logarithm of the given number by the index of the root required to be extracted. So

1st. L. ab or $a \times b$ is $=$ L. $a +$ L. b
L. 18 or 3×6 is $=$ L. $3 +$ L. 6
L. $5 \times 9 \times 73$ is $=$ L. $5 +$ L. $9 +$ L. 73

2d. L. $a \div b$ is $=$ L. $a -$ L. b
L. $18 \div 6$ is $=$ L. $18 -$ L. 6
L. $79 \times 5 \div 9$ is $=$ L. $79 +$ L. $5 -$ L. 9
L. $\frac{1}{2}$ or $1 \div 2$ is $=$ L. $1 -$ L. $2 = 0 -$ L. $2 = -$ L. 2
L. $\frac{1}{n}$ or $1 \div n$ is $= -$ L. n.

3d. L. r^n is $= n$ L. r; L. $r^{\frac{1}{n}}$ or L. $\sqrt[n]{r}$ is $= \frac{1}{n}$ L. r; L. $r^{\frac{m}{n}}$ is $= \frac{m}{n}$ L. r.

L. 2^6 is $= 6$ L. 2; L. $2^{\frac{1}{2}}$ or L. $\sqrt[3]{2}$ is $= \frac{1}{3}$ L. 2; L. $2^{\frac{3}{4}}$ is $= \frac{3}{4}$ L. 2.

So that any number and its reciprocal have the same logarithm but with contrary signs; and the sum of the logarithms of any number and its complement, is equal to 0.

To construct Logarithms.

It has been shown, in the foregoing historical part, that the logarithm of $\frac{b}{a}$ is $= \frac{2}{m} \times : \frac{x}{z} + \frac{x^3}{3z^3} + \frac{x^5}{5z^5} + \frac{x^7}{7z^7}$ &c, where z is the sum and x the difference of a and b; also $m = 2{\cdot}302585092994$ &c, the hyp. logarithm of 10. Therefore if a and b be any two numbers differing only by unity, so that x or $b - a$ may be $= 1$; then shall the logarithm of b be $=$ L. $a + \frac{2}{m} \times : \frac{1}{z} + \frac{1}{3z^3} + \frac{1}{5z^5}$ &c. Which gives this rule in words at length: call z the sum of any number (whose logarithm is sought) and the number next less by unity: divide ·8685889638 &c (or $2 \div 2{\cdot}3025$ &c) by z, and reserve the quotient: divide the reserved quotient by the square of z, and reserve this quotient: divide this last quotient also by the square of z, and again reserve this quotient: and thus proceed continually, dividing the last quotient by the square of z, as long as division can be made. Then write these quotients orderly under one another, the first uppermost, and divide them respectively by the uneven numbers 1, 3, 5, 7, 9, 11, &c, as long as division can be made:

that is, divide the first reserved quotient by 1, the 2d by 3, the 3d by 5, the 4th by 7, &c. Add all these last quotients together, then the sum will be the logarithm of $b \div a$; and therefore to this logarithm adding also the logarithm of a the next less number, the sum will be the required logarithm of b the number proposed.

Ex. 1. *To find the Log. of* 2.

Here the next less number is 1, and 2 + 1 = 3 = z, whose square is 9. Then

3)·868588964	1)·289529654(	·289529654
9)·289529654	3) 32169962(	10723321
9) 32169962	5) 3574440(	714888
9) 3574440	7) 397160(	56737
9) 397160	9) 44129(	4903
9) 44129	11) 4903(	446
9) 4903	13) 545(	42
9) 545	15) 61(	4
9) 61	Log. $\frac{2}{1}$ -	·301029995
	Add L. 1 -	·000000000
	Log. of 2 -	·301029995

Ex. 2. *To find the Log. of* 3.

Here the next less number is 2, and 2 + 3 = 5 = z, whose square is 25, to divide by which always multiply by ·04. Then

5)·868588964	1)·173717793(	·173717793
25)·173717793	3) 6948712(	2316237
25) 6948712	5) 277948(	55590
25) 277948	7) 11118(	1588
25) 11118	9) 448(	50
25) 445	11) 18(	2
18	L. $\frac{3}{2}$ - -	·176091260
	L. 2 add -	·301029995
	L. 3 - -	·477121255

Then because the sum of the logarithms of numbers gives the logarithm of their product, and the difference of the logarithms gives the logarithm of the quotient of the numbers, from the above two logarithms, and the logarithm of 10 which is 1, we may raise a great many other logarithms, thus:

Ex. 3. Because $2 \times 2 = 4$, therefore

to L. 2 - - -	·301029995$\frac{2}{3}$
add L. 2 - -	·301029995$\frac{2}{3}$
sum is L. 4 - -	·602059991$\frac{1}{3}$

Ex. 4. Because $2 \times 3 = 6$, therefore

to L. 2 - - -	·301029995
add L. 3 - -	·477121255
sum is L. 6 - -	·7781511250

Ex. 5. Because $2^3 = 8$, therefore

L. 2 - - - -	·301029995$\frac{2}{3}$
mult. by 3 - -	3
gives L. 8 - -	·903089987

Ex. 6. Because $3^2 = 9$, therefore

L. 3 - - -	·477121254$\frac{7}{10}$
mult. by 2 -	2
gives L. 9 -	·954242509

Ex. 7. Because $\frac{10}{2} = 5$, therefore

from L. 10 -	1·000000000
take L. 2 - -	·301029995$\frac{2}{3}$
leaves L. 5 -	·698970004$\frac{1}{3}$

Ex. 8. Because $12 = 3 \times 4$, therefore

to L. 3 - -	·477121255
add L. 4 - -	·602059991
gives L. 12 -	1·079181246

And thus, computing, by the general rule, the logarithms of the other prime numbers, 7, 11, 13, 17, 19, 23, &c; and then using composition and division, we may easily find as many logarithms as we please, or may speedily examine any logarithm in the table.

THE DESCRIPTION AND USE OF THE TABLES.

THE following collection consists of various tables, in the following order, viz. 1, A large table of logarithms to 7 places of figures; 2, A table for finding logarithms and numbers to 20 places; 3, Logarithms to 20 places, with their 1st, 2d, and 3d differences; 4, Another table of logarithms to 20 places, with their 1st, 2d, and 3d differences; 5, Logarithms to 61 places; 6, Another table of logarithms to 61 places, with their 1st, 2d, 3d, and 4th differences; 7, Hyperbolic logarithms; 8, Logistic logarithms; 9, Logarithmic sines and tangents to every second of the first 2 degrees; 10, Natural and logarithmic sines, tangents, secants, and versed sines, with their differences to every minute of the quadrant. After which follow several smaller tables; as a table of the lengths of circular arcs; a traverse table, or table of difference of latitude and departure, to every degree and quarter point of the compass; a table for changing the common logarithms into hyperbolic logarithms; and a table of the names and number of degrees &c in every point of the compass; as also lists of errata in various works of this sort. Of each of which in their order.

Of the large Table of Logarithms.

The first is the large table of logarithms, to all numbers from 1 to 100000; by which may be found the logarithm to any number, and the number to any logarithm, to 7 places of figures. This table consists of two parts; the first contains, in 4 pages, the first 1000 numbers, with their corresponding logarithms in adjacent columns; the second contains all the 100000 numbers and their logarithms, with the differences and proportional parts, disposed as follows: in the 1st column of each page are the first 4 figures of the numbers, and along the top and bottom of the columns is the 5th figurè, in which columns are placed all the logarithms, the first 3 figures of each logarithm being at the beginning of the lines in the first column of logarithms, signed 0 at the top and bottom, and the other 4 figures in the remaining columns. Sometimes the first three figures of the logarithms are found in the line next below the number, viz. when the fourth figures have changed from 9's to 0's, in which case, a bar is placed over the first cipher, to catch the eye, thus $\bar{0}$. After the 10 columns of logarithms, stands their column of differences, signed D; and lastly, after that, the column of proportional parts, signed Pro. Pts. showing what proportional part of each difference corresponds to 1, 2, 3, &c, the whole difference answering to 10; or showing the $\frac{1}{10}$, $\frac{2}{10}$, $\frac{3}{10}$, &c, of the differences.

Note, The logarithms in these columns are all supposed to be decimals, and their corresponding natural numbers may be either integers or decimals or mixt numbers; for the same figures, whatever be their denomination, have the same decimal logarithm, and these differ only in the index or characteristic, which is the integer num-

ber to be prefixed to the decimal part of the logarithm; and this is always the number which expresses the distance of the highest denomination, or left-hand figure, of the natural number, from the units place. So that if the natural number consist of only one place of integers, the index of its log. will be 0: if of 2, 3, 4, 5, &c, the index of its logarithm will be respectively 1, 2, 3, 4, &c, being 1 less than the number of integer places: and the same figures made negative will give the index of the logarithm of a decimal, viz. if the natural number be a decimal, and its first significant figure be in the place of primes, 2ds, 3ds, 4ths, &c, the index of its logarithm will be respectively $\bar{1}$, $\bar{2}$, $\bar{3}$, $\bar{4}$, &c, or the figure which expresses the distance of the first place of the natural number from the units place, but with a negative sign, as the number is below the place of units, the sign being written above the index instead of before it, as that part only of the logarithms is to be considered as negative, the decimal part of it being always affirmative. And in the arithmetical operations of addition and subtraction with logarithms, the negative indexes will have the contrary effect to that of the decimal part of the logarithm, viz. when the logarithm is to be added, the figure of the negative index must be subtracted, *et vice versa*. Hence if 4234097 be the tabular or decimal part of the logarithm belonging to the figures 2651, without any regard to their particular denominations; then according as they are varied with respect to the number of decimals, as in the 1st annexed column, the index of their logarithm, and the complete logarithm, will vary as in the 2d column here annexed. And hence, like as when the natural number is given, we find the index of its logarithm by counting how far its first figure on the left hand is from the units place; so when a logarithm is given, the denominations of the figures in its natural number will be found by placing the decimal point so, that the number of integer places may be 1 more than that of the index when positive, or by setting the first significant figure in that decimal place, which is expressed by the number of the index when negative.

Number	Logar.
2651	3·4234097
265·1	2·4234097
26·51	1·4234097
2·651	0·4234097
·2651	$\bar{1}$·4234097
·02651	$\bar{2}$·4234097
·002651	$\bar{3}$·4234097

Of finding the Logarithm of a given Number, or the Number to a given Logarithm.

1. *To find the Logarithm of a Number consisting of 3 figures.*

Find the number in the column of numbers in one of the first 4 pages of the table, and immediately on the right of it is its logarithm sought. So the logarithm of 72 is 1·8573325, and the logarithm of 3·33 is 0·5224442, when the proper index is supplied.

2. *To find the Logarithm of a Number consisting of 4 Places.*

In the first column (signed N) in some one of the pages of the table after the first four, find the given number, then against it in the 2d column (signed 0) is the logarithm sought. So the logarithm of 2254 is 3·3529539, and that of 31·32 is 1·4958218.

3. *To find the Logarithm of a Number consisting of 5 Places.*

Find the first 4 figures of the given number in the first column as before, and the 5th figure at the top or bottom; then the 7 figures of the logarithm are found in two columns on the line of the first 4 figures of the given number, viz. the first 3 figures of the logarithm are the first 3 common figures of the 2d column (signed 0), and the last 4 figures are on the same line, but in the column signed with the 5th figure of the given number. So the logarithm of 23204 is 4·3655629, and that of 746·40 is 2·8729716, and that of ·083178 is $\overline{2}$·9200085.

Note, When the last four figures of the logarithm begin with a cipher, or any figure less than the last four in the 2d column begins with, then the first 3 common figures are those in the next lower line: so in the last example the first 3 common figures are 920, and not 919.

4. *To find the Logarithm of a Number of 6 Places.*

Find the logarithm of the first 5 figures by the last article, and take the difference between that logarithm and the next following logarithm, or (which is the same thing) find the difference nearest opposite in the last column but one, signed D; then under that difference in the last column (of proportional parts) and against the 6th figure of the given number, is the part to be added to the logarithm before found for the first 5 figures, the sum being the logarithm sought. So to find the logarithm of 3409·26: the logarithm of 34092, the first 5 figures, being 5326525, and the common difference 127, under which and against 6 in the last column is 76, which being added to the former logarithm, and the proper index prefixed, we have 3·5326601 for the whole logarithm required.

5. *To find the Logarithm of a Number of 7 Places.*

Find the logarithm of the first 5 figures by the 3d article, and of the sixth figure by the 4th article; then for the logarithm of the 7th figure, divide its proportional part by 10, that is, set it one place farther to the right hand than the last figure of the logarithm reaches; add all the three together, and their sum will be the logarithm required.

Thus, to find the logarithm of 3·409264.

The several parts being taken out according to the rule, and placed as in the margin, the sum gives the whole logarithm sought.

Numb.		Logar.
34092	- -	5326525
6	-	76
4	-	5,1
3·409264	-	0·5326606

Note, In the same way we might take out the proportional part of an 8th figure, dividing its tabular part by 100, or setting it two places farther to the right hand than the first logarithm. Or the whole proportional part for any number of figures above five, may be found at once, by multiplying the common tabular difference of the logarithms, found as before, by all the figures after the 5th, cutting off from the product as many figures as we multiply by, and adding the rest to the logarithm of the first 5 figures before found. So in the last example above, having found the common difference 127, multiplying it by 64 the last two figures, cutting off two, add the rest to the logarithm of the first 5, as in the margin.

127
64
508
762
81,28
5326525
0·5326606

For another example, suppose we wanted the logarithm of the following 8 figures 34092648. The operation by both methods will be as below.

34092	- - - - -	5326525
6	- - - - -	76
4	- - - -	5,1
8	- - - -	1,02
34092648	- -	7·5326607

127	
648	
1016	
508	
762	
82,296	
5326525	
7·5326607	the same as the other.

6. *To find the Logarithm of a Vulgar Fraction, or of a Mixt Number.*

Either reduce the vulgar fraction to a decimal, and find its logarithm as above. Or else (having reduced the mixt number to an improper fraction), subtract the logarithm of the denominator from the logarithm of the numerator, and the remainder will be the logarithm of the fraction sought.

Ex. 1. To find the log. of $\frac{3}{16}$ or 0·1875.		*Ex.* 2. To find the log. of $13\frac{3}{4}$ or $\frac{55}{4}$.	
From log. of 3 - -	0·4771213	From log. of 55 - -	1·7403627
Take log. of 16 - -	1·2041200	Take log. of 4 - -	0·6020600
Rem. log. of $\frac{3}{16}$ or ·1875	$\bar{1}$·2730013	Leaves log. of $\frac{55}{4}$ or 13·75	1·1383027

7. *To find the Natural Number answering to any given Logarithm.*

Find the first 3 figures, next after the index of the given logarithm, in the second column, signed 0, and the other 4 figures on the same line in one of the nine following columns; if the figures of the loga-

rithm be thus found exactly, then on the same line in the first column are the first four figures of the natural number, and the 5th is at the top or bottom of that column in which the last four figures of the log. were found. So to find the number answering to the logarithm 2·5890108. In pa. 63 I find the first three figures 589, and in column 6 of the line above are found the other four ·0108 (because the first three common figures are supposed to begin at that part of the line above where they are placed): then on the same line in the column of numbers stand the first four figures 388·1, and 6 at the top of the column, making in all 388·16 for the number sought; having placed the decimal point so as to make three integers, being 1 more than 2 the index of the given logarithm.

But if the given logarithm be not found exactly in the table, subtract the next less tabular logarithm from it, and look for the remainder in the proportional parts under the difference between the two tabular logarithms next less and greater than the given logarithm, and against it, or the part next less, is a 6th figure to be annexed to the five figures before found. And if the remainder be not found exactly in the proportional parts, subtract the next less part from it, and annex a cipher to this 2d remainder, then against the nearest proportional part (either greater or less) is a 7th figure to be annexed to the six before found. And that figure will be the nearest to the truth in that place, either too much or too little.

Ex. To find the number answering to the logarithm 1·2335678.
The next less tab. log. is the log. of 17122 viz. 2335545

		1st rem.	133
The difference is 254	- 5	for the part	127
and the table of pro. pts. gives		2d rem.	60
	- 2	for the part - -	51

So that the number sought is 17·12252, making two integers for the index 1.

Or the 6th and 7th figures may be found without the table of proportional parts, by dividing the first remainder by the tabular difference, annexing one cipher to the dividend for each figure to be found. So, in the last example, the remainder 133, with two ciphers annexed, being divided by the tabular difference 254, as in the margin, the quotient gives 52 for the 6th and 7th figures, the same as before. In like manner may be found the numbers to the following logarithms.

```
254)133,00(52
    127,0
    -----
      600
      508
```

Logar.	1·2345678	3·7343003	$\bar{1}$·0921406	$\bar{2}$·3720468	4·6123004	3·2946809
Numb.	17·16200	5·423758	·1236348	·02355303	40954·39	1970·974

OF LOGARITHMICAL ARITHMETIC.

I. *Multiplication by Logarithms.*

Add together the logarithms of all the factors; then the sum is a logarithm, the natural number corresponding to which, being found in the table, will be the product required.

Observing to add, to the sum of the affirmative indices, what is carried from the sum of the decimal parts of the logarithms.

And that the difference between the affirmative and negative indices, is to be taken for the index to the logarithm of the product.

Ex. 1. To multiply 23·14 by 5·062.

23·14 its log. is	1·3643634
5·062 its log. is	0·7043221
Product 117·1347 -	2·0686855

Ex. 2. To mul. 2·581926 by 3·457291.

2·581926 its log. is	0·4119438
3·457291 - - -	0·5387359
Prod. 8·92647 - -	0·9506797

Ex. 3. To mult. 3·902, and 597·16, and ·0314728 all together.

3·902 its log. is	0·5912873
597·16 -	2·7760907
·0314728 -	$\bar{2}$·4979353
Prod. 73·33533 -	1·8653133

The $\bar{2}$ cancels the 2, and the 1 to carry from the decimals is set down.

Ex. 4. To mult. 3·586, and 2.1046, and 0·8372, and 0·0294 all together.

3·586 its log. is	0.5546103
2·1046 - -	0·3231696
0·8372	$\bar{1}$·9228292
0·0294 - -	$\bar{2}$·4683473
Prod. ·1857618 -	$\bar{1}$·2689564

Here the 2 to carry cancels the $\bar{2}$, and there remains the $\bar{1}$ to set down.

II. *Division by Logarithms.*

From the logarithm of the dividend, subtract the logarithm of the divisor; the remainder is a logarithm, whose corresponding number will be the quotient required.

But first observe to change the sign of the index of the logarithm of the divisor, viz. from negative to affirmative, or from affirmative to negative; then take the sum of the indices if they be of the same kind, or their difference when of different kinds, with the sign of the greater, for the index to the logarithm of the quotient.

And when 1 is borrowed in the left-hand place of the decimal part of the logarithm, add it to the index of the logarithm of the divisor when that index is affirmative, but subtract it when negative; then let the index thus found be changed, and worked with as before.

Ex. 1. To divide 24163 by 4567.

Divid. 24163	its log.	4·3831509
Divis. 4567	- -	3·6596310
Quot. 5·290782	-	0·7235199

Ex. 2. To divide 37·149 by 523·76.

Divid. 37·149	its log.	1·5699471
Divis. 523·76	- -	2·7191323
Quot. ·07092752	-	$\bar{2}$·8508148

Ex. 3. To divide ·06314 by ·007241.

Divid. ·06314	its log.	$\bar{2}$·8003046
Divis. ·007241	-	$\bar{3}$·8597985
Quot. 8·719792	-	0·9405061

Here 1 carried from the decimals to the $\bar{3}$ makes it become $\bar{2}$, which taken from the other $\bar{2}$, leaves 0 remaining.

Ex. 4. To divide ·7438 by 12·9476.

Divid. ·7438	its log.	$\bar{1}$·8714562
Divis. 12·9476	- -	1·1121893
Quot. ·05744694	-	$\bar{2}$·7592669

Here the 1 taken from the $\bar{1}$ makes it become $\bar{2}$ to set down.

III. *The Rule of Three, or Proportion.*

Add the logarithms of the 2d and 3d terms together, and from their sum subtract the logarithm of the 1st, by the foregoing rules; the remainder will be the logarithm of the 4th term required.

Or in any compound proportion whatever, add together the logarithms of all the terms that are to be multiplied, and from that sum take the sum of the others; the remainder will be the logarithm of the term sought.

But instead of subtracting any logarithm, we may add its complement, and the result will be the same. By the complement is meant the logarithm of the reciprocal of the given number, or the remainder by taking the given logarithm from 0 or from 10, changing the radix from 0 to 10; the easiest method of doing which, is to begin at the left-hand, and subtract each figure from 9, except the last significant figure on the right-hand, which must be subtracted from 10. But when the index is negative, add it to 9, and subtract the rest as before. And for every complement that is added, subtract 10 from the last sum of the indices.

Ex. 1. To find a 4th proportional to 72·34, and 2·519, and 357·4862.

As 72·34	- comp. log.	8·1406215
To 2·519	- - - -	0·4012282
So 357·4862	- - -	2·5532592
To 12·44827	- - -	1·0951089

Ex. 2. To find a 3d proportional to 12·796 and 3·24718.

As 12·796	- comp. log.	8·8929258
To 3·24718	- - - -	0·5115064
So 3·24718	- - - -	0·5115064
To ·8240216	- - -	$\bar{1}$·9159386

Ex. 3. To find a number in proportion to ·379145 as ·85132 is to ·0649.

As ·0649	- comp. log.	11·1877553
To ·85132	- - - -	$\bar{1}$·9300928
So ·379145	- - - -	$\bar{1}$·5788054
To 4·973401	- - -	0·6966535

Ex. 4. If the interest of 100*l.* for a year or 365 days be 4·5*l.* what will be the interest of 279·25*l.* for 274 days?

As 100	comp. log.	8·0000000
365		7·4377071
To 279·25	- - -	2·4459932
274	- - - -	2·4377506
So 4·5	- - - - - -	0·6532125
To 9·433296	- - -	0·9746634

IV. *Involution, or Raising of Powers.*

Multiply the logarithm of the number given by the proposed index of the power, and the product will be the logarithm of the power sought.

Note, In multiplying a logarithm with a negative index by any affirmative number, the product will be negative.—But what is to be carried from the decimal part of the logarithm will be affirmative.—Therefore the difference will be the index of the product; and it is to be accounted of the same kind with the greater.

Ex. 1. To find the 2d power of 2·5791.

Root 2·5791 its log.	0·4114682
index - -	2
Power 6·651756 -	0·8229364

Ex. 3. To find the 4th power of ·09163.

Root ·09163 its log.	$\bar{2}$·9620377
index - - -	4
Power ·0000704938 -	$\bar{5}$·8481508

Here 4 times the negative index being $\bar{8}$, and 3 to carry, the difference $\bar{5}$ is the index of the product.

Ex. 2. To find the cube of 3·07146.

Root 3·07146 its log.	0·4873449
index - - -	3
Power 28·97575 -	1·4620347

Ex. 4. To find the 365th power of 1.0045.

Root 1·0045 its log.	0·0019499
index - -	365
	97495
	116994
	58497
Power 5·148888 -	0·7117135

V. *Evolution, or Extraction of Roots.*

Divide the logarithm of the power, or given number, by its index, and the quotient will be the logarithm of the root required.

Note, When the index of the logarithm is negative, and the divisor is not exactly contained in it without a remainder, increase it by such a number as will make it exactly divisible; and carry the units borrowed, as so many tens, to the left-hand place of the decimal part of the logarithm; then divide the results by the index of the root.

Ex. 1. To find the square root of 365.

Power 365 - 2) 2·5622929
Root 19·10498 - 1·2811465

Ex. 2. To find the cube root of 12345.

Power 12345 - 3) 4·0914911
Root 23·11162 - 1·3638304

Ex. 3. To find the 10th root of 2.

Power 2 - - 10) 0·3010300
Root 1·071773 - 0·0301030

Ex. 4. To find the 365th root of 1·045.

Power 1·045 365) 0.0191163
Root 1·000121 - 0·0000524

Ex. 5. To find the square root of ·093.

Power ·093 - 2) $\bar{2}$·9684829
Root ·304959 - $\bar{1}$·4842415

Here the divisor 2 is contained exactly once in $\bar{2}$ the negative index, therefore the index of the quotient is $\bar{1}$.

Ex. 6. To find the cube root of ·00048.

Power ·00048 3) $\bar{4}$·6812412
Root ·07829735 - $\bar{2}$·8937471

Here the divisor 3 not being exactly contained in $\bar{4}$, augment it by 2, to make it become $\bar{6}$, in which the divisor is contained just $\bar{2}$ times; and the 2 borrowed being carried to the other figures 6 &c, makes 2·6812412, which divided by 3 gives ·8937471.

OF THE TABLES FOR LOGARITHMS TO TWENTY PLACES.

THESE are tables 2d, 3d, and 4th, beginning at page 187. Of these, table 2 contains all numbers from 1 to 1000, and all uneven numbers from 1000 to 1161; with their logarithms to twenty places: table 3 contains all numbers from 101000 to 101139, with their logarithms to twenty places, and the 1st, 2d, and 3d differences of those logarithms: and table 4 contains all logarithms regularly from 00001 to 00139, with their corresponding natural numbers to twenty places, as also the 1st, 2d, and 3d differences of those numbers. And by means of them may be found the logarithm to any other number, and the number to any other logarithm, to twenty places of figures.

(1.) *To find the Logarithms to given Numbers.*

CASE 1. If the given number b be found in any of these three tables; then its logarithm B is in the line even with it.

CASE 2. If b is known to be the product or quotient of numbers found in these tables; then B is the sum or difference of the logarithms of those numbers.

CASE 3. If a', the first six significant figures of a given number b', be found in table 3; let a' be an integer, A' its logarithm; δ the remaining figures of b'; x the complement of δ to d' or 1; D', D'', D''', the 1st, 2d, 3d differences of the logarithms in the same line with A'; $f = \frac{1}{3} D''' \times \overline{x+1} + D''$: Then B' the logarithm of the number b' will be

$$\left.\begin{array}{ll} \overline{D' \times \delta + A'} \ \text{- -} & \text{to } 12 \\ \overline{\overline{\tfrac{1}{2} x D'' + D'} \times \delta + A'} \ \text{-} & \text{to } 17 \\ \overline{\overline{\tfrac{1}{2} x f + D'} \times \delta + A'} \ \text{- -} & \text{to } 20 \end{array}\right\} \text{places of figures nearly.}$$

Ex. 1. Given the number $b' = 0{\cdot}01010{,}26227{,}6351$, to find B' its logarithm nearly to twelve places.

Here a' =	101026	A' =	00443,31579,747
δ =	0·2276351	$\delta D'$	+ 9785,618 −
D' =	429881746	B' =	$\bar{2}$·00443,41365,365 −

Ex. 2. Given $b' = 0{\cdot}01010{,}26227{,}63509{,}626$, to find B' its log. nearly to 17 places. Here $a' = 101026$.
$\delta = 0{\cdot}22763{,}509626$; $x = 0{\cdot}772365$; $D' = 42988{,}174579$; $D'' = 425510$.

Now $\frac{1}{2} x D''$	16432,45
D'	42988,17457,86
$\overline{\frac{1}{2} x D'' + D'}$	42988,33890,31
$\overline{\frac{1}{2} x D'' + D'} \times \delta$	9785,65466,42
A'	0·0443,31579,74695,33
And $\overline{\overline{\frac{1}{2} x D'' + D'} \times \delta + A'}$, or B'	$\bar{2}$·00443,41365,40161,75

Ex. 3. Given $b' = 0{\cdot}01010{,}26227{,}63509{,}62573{,}17345$, to find B' its log. nearly to 20 places. $a' = 101026$.
$\delta = 0{\cdot}22763{,}50962{,}573173$; $x = 0{\cdot}77236{,}490374$; $x + 1 = 1{\cdot}772365$; $D' = 42988{,}17457{,}86301$; $D'' = 42550{,}96343$; $D''' = 84236$.

Now $\frac{1}{3} D''' \times \overline{x+1}$	49766
D''	42550,96343
f	42551,46109
$\frac{1}{2} x f$	16432,62757
D'	42988,17457,86301
$\overline{\frac{1}{2} x f + D'}$	42988,33890,49058
$\overline{\frac{1}{2} x f + D'} \times \delta$	9785,65466,45604
A'	00443,31579,74695,32791
And B'	$\bar{2}$,00443,41365,40161,78395

CASE 4. If the number b do not come under one of the preceding cases: put a for the first five figures of b; n for 101, the least, or some one, of the numbers in table 3; then $\frac{a}{n}$ or $\frac{n}{a} = a$ is to be had in table 2, with A its logarithm; let $b' = \frac{b}{a}$ or ba, and a' the first six significant figures of b' (found in table 3) be an integer,

and A' its logarithm; put δ for the remaining figures of b'; x the complement of δ to d'; D', D'', D''', the 1st, 2d, 3d, differences of the logarithms in the same line with A'; $f = \frac{1}{3} D''' \times \overline{x+1} + D''$. Then B the logarithm of the number b will be

$$\left.\begin{array}{l} D' \times \delta + A' \pm A = B' \pm A \text{ to } 12 \\ \overline{\tfrac{1}{2} x D'' + D'} \times \delta + A' \pm A = B' \pm A \text{ to } 17 \\ \overline{\tfrac{1}{2} x f + D'} \times \delta + A' \pm A = B' \pm A \text{ to } 20 \end{array}\right\} \text{places of figures nearly.}$$

Ex. Given $b = 3{\cdot}14159,26535,89793,23846,26434$, to find B to twenty places.

Here $a = 31415$ Let $a = \frac{a}{n} = 311$.

Then $b' = \frac{b}{a} = 0{\cdot}01010,15840,95144,02970,57$; $a' = 101015$.

$\delta = 0{\cdot}84095,14402,97057$; $x = 0{\cdot}15904,85597$; $x + 1 = 1{\cdot}15905$;
$D' = 42992,85574,06337$; $D'' = 42560,23099$; $D''' = 84263$.

Now $\frac{1}{3} D''' \times \overline{x+1}$	32555
D''	42560,23099
f	42560,55654
$\frac{1}{2} x f$	3384,59761
D'	42992,85574,06337
$\overline{\frac{1}{2} x f + D'}$	42992,88958,66098
$\overline{\frac{1}{2} x f + D'} \times \delta$	36154,93242,03919
A'	00438,58681,74054,30961
A	49276,03890,26837,50555
And B	0·49714,98726,94133,85435

Or let $a = \frac{n}{a} = 3{\cdot}216 = 0{\cdot}536 \times 6$.

Then $b' = ba = 10{\cdot}10336,19739,44775,0549$; $a' = 101033$.
$\delta = 0{\cdot}61973,94477,50549$; $x = 0{\cdot}38026,055225$; $x + 1 = 1{\cdot}38026$;
$D' = 42985,19618,80760$; $D'' = 42545,06747$; $D''' = 84219$.

Now $\frac{1}{3} D''' \times \overline{x+1}$	38748
D''	42545,06747
f	42545,45495
$\frac{1}{2} x f$	8089,17910
D'	42985,19618,80760
$\overline{\frac{1}{2} x f + D'}$	42985,27707,98670
$\overline{\frac{1}{2} x f + D'} \times \delta$	26639,67187,88811
A'	00446,32488,03359,61854
B'	1·00446,59127,70547,50665
A	0·50731,60400,76413,65230
$B = B' - A$	0·49714,98726,94133,85435

(II.) *To find the Numbers to given Logarithms.*

CASE 1. When the logarithm B is found in any of these three tables; then its number b is in the line even with it.

CASE 2. If the first five figures (omitting the index) of a given logarithm B', be between 00432 and 00492: take them as an integer, and put A' and c' for the logarithms, in table 3, next less and greater than B', a' and c' their numbers; let D' ($= C' - A'$) and D'' be the 1st and 2d differences in the line with A'; $\Delta = B' - A'$; $d' = (c' - a' =)$ 1; $x = \frac{D' - \Delta}{D'}$; $\delta = \frac{\Delta}{D' + \frac{1}{2} x\, D''}$: then $b' = a' + \delta$, nearly true to 17 places of figures.

Ex. Given the logarithm B' .... $= 5{,}00446{,}59127{,}70547{,}507$
to find b' its number. $A' = 5{,}00446{,}32488{,}03359{,}619$

$a' = 101033$
δ .... $0{\cdot}61973{,}944776$
$b' = 101033{\cdot}61973{,}944776$

$\Delta = 0{\cdot}26639{,}67187{,}888$
$D' = 0{\cdot}42985{,}19618{,}808$
$D' - \Delta = 0{\cdot}16345{,}52430{,}920$
$x = 0{\cdot}38026$
$D'' = 0{\cdot}00000{,}42545$
$\frac{1}{2} x\, D'' = 0{\cdot}00000{,}08089{,}1$
$D' + \frac{1}{2} x\, D'' = 0{\cdot}42985{,}27707{,}9$

But when any other logarithm B is given, subduct ·004321 from the first six figures of B: call the remainder R, and let A be the logarithm in table 2, next less than R, or next greater than the complement of R, and a its number: then $B' = B - A$, or $B' = B + A$, will be within the limits of table 3, and b' will be found as in the preceding example; and if $B' = B - A$, then $b = ab'$; or if $B' = B + A$, then $b = \frac{b'}{a}$.

CASE 3. If A', the first five figures (omitting the index) of a given logarithm B', be found in table 4: let a' be its number; and put A' as an integer, and Δ the remaining figures of B', and x the complement of Δ to D'; d', d'', d''', the 1st, 2d, 3d differences of the numbers in the same line with a'; $f = d'' - \frac{1}{3} d''' \times \overline{x + 1}$: then the number b whose logarithm is B', will be

$$\left.\begin{array}{lll} d' \times \Delta + a' & - - & \text{to } 12 \\ \overline{d' - \frac{1}{2} x\, d''} \times \Delta + a' & - - & \text{to } 17 \\ \overline{d' - \frac{1}{2} x f} \times \Delta + a' & - & \text{to } 20 \end{array}\right\} \text{places of figures nearly.}$$

Ex. Given the logarithm $B' = 0{\cdot}00006{,}93311{,}37711{,}69929$, to find its number to 20 places. Here $A' = 00006$.
$\Delta = 0{\cdot}93311{,}37711{,}69929$; $x = 0{\cdot}06688{,}622883$; $x + 1 = 1{\cdot}0668$
$d' = 23029{,}29742{,}21293$; $d'' = 53027{,}52746$; $d''' = 1{\cdot}2210$

Now $\frac{1}{4}\, d''' \times \overline{x + 1}$ 43422

d'' 53027,52746

f 53027,09324

$\frac{1}{3} x f$ 1773,39115

d' 23029,29742,21293

$d' - \frac{1}{3} x f$ 23029,27968,82178

$\overline{d' - \frac{1}{3} x f} \times \Delta$ 21488,93801,72000

a' 10001,38164,64943,57474

And b' .... 1·00015,96535,87452,9474

Case 4. If the logarithm B do not come under one of the preceding cases. Put A for the logarithm in table 2, next less than B, or next greater than the complement of B, and a its number; let $B' = B - A$, or $B' = B + A$; and A', the first five figures of B', may be had in table 4, with a' its number; put A' as an integer, and let Δ be the remaining figures of B'; x the complement of Δ to D'; d', d'', d''', the 1st, 2d, 3d differences of the numbers in the same line with a'; $f = d'' - \frac{1}{4} d''' \times \overline{x + 1}$: then the number b', whose logarithm is B', will be

$$\left.\begin{array}{l} \overline{d' \times \Delta + a'} \times a = ab' \text{ to } 11 \\ \overline{\overline{d' - \frac{1}{2} x\, d''} \times \Delta + a'} \times a = ab' \text{ to } 16 \\ \overline{\overline{d' - \frac{1}{3} x f} \times \Delta + a'} \times a = ab' \text{ to } 19 \end{array}\right\} \text{places of figures nearly.}$$

Ex. Given $B = \bar{4}{\cdot}46372,61172,07184,15204$, to find b its number.

Let $A = 1{\cdot}46239,79978,98956,08733$. $a = 29$.

$B' = B - A = \bar{5}{\cdot}00132,81193,08228,06471$. $A' = 00132$

$\Delta = 0{\cdot}81193,08228,06471$; $x = 0{\cdot}18806,91772$; $x + 1 = 1{\cdot}18807$;

$d' = 23096,20835,34589$; $d'' = 53181,59733$; $d''' = 1{\cdot}22457$.

Now $\frac{1}{4}\, d''' \times \overline{x + 1}$ 48496

d'' 53181,59733

f 53181,11237

$\frac{1}{3} x f$ 5000,86402

d' 23096,20835,34589

$d' - \frac{1}{3} x f$ 23096,15834,48187

$\overline{d' - \frac{1}{3} x f} \times \Delta$ 18752,48284,85771

a' 10030,44036,01963,96855

b' 10030,62788,50248,82626

$b = ab'$ .... 0·00029,08882,08665,72159,6154

fa

rith.

999

3·14159

being near

313 × 271 div

16469,24417,438.

Let $\frac{b-a}{b+a}=\frac{x}{z}$ ....

A ....

$\frac{1}{3}A^3$ ....

$\frac{1}{5}A^5$ ....

$\frac{1}{7}A^7$ ....

Natural logarithm of $\frac{b}{a}$ .... 0·00000,00097,08006,09180,37510,21855,32802,79572,19577,25804,26550,70[illegible],8[illegible]

This multiplied by 0·86858,89638&c gives Briggs's logarithm of $\frac{b}{a}$.

Or, given B $= \bar{4}\cdot46372,61172,07184,15204$, to find b.
Let A $= 2\cdot53655,84425,71530,11205$. $a = 344$.

$B' = B + A = \bar{1}\cdot00028,45597,78714,26409$. $A' = 00028$.
$\Delta = 0\cdot45597,78714,26409$; $x = 0\cdot54402,21286$; $\overline{x+1} = 1\cdot54402$;
$d' = 23040,96629,91521$; $d'' = 53054,39634$; $d''' = 1\cdot22163$.

Now $\frac{1}{2} d''' \times \overline{x+1}$	62874
d''	53054,39634
f	53053,76760
$\frac{1}{2} x f$	14431,21179
d'	23040,96629,91521
$d' - \frac{1}{2} x f$	23040,82198,70342
$\overline{d' - \frac{1}{2} x f} \times \Delta$	10506,10496,55627
a'	10006,44931,70511,67281
b'	10006,55437,81008,22908
$b = \frac{b'}{a}$	0·00029,08882,08665,72159,616

OF THE TABLES FOR LOGARITHMS TO SIXTY-ONE PLACES.

THESE are tables 5 and 6, from page 203 to page 207; the former containing the natural numbers in regular order from 1 to 100, and after that all the primes up to 1100, with their corresponding logarithms, to sixty-one places of figures; and the latter in page 207 contains all numbers in order from 999980 to 1000020, with their logarithms, to sixty-one places, as also the 1st, 2d, 3d, and 4th differences of these logarithms. And the use of these tables, in finding the logarithm to any number, or the number to any logarithm, each to sixty-one places of figures, will be as follows.

1. *Any Number being given, to find its Logarithm to 61 Places of Figures.*

If the given number be in either of the tables, its logarithm is found in the line even with it.

When the given number is the product or quotient of any two or more numbers found in the tables, the sum or difference of their logarithms is the logarithm of the given number.

When the given number is not in either table, or is not the product or quotient of any there, then divide 999998000000 by the first six figures of the given number; the quotient, if composed by the multiplication, or division, or both, of any numbers in table 5, or the nearest number to the quotient so composed, will for the most part be a factor for multiplying the given number, to make the first six or seven figures of the product, with the residue as a decimal, near one of the numbers in table 6, whose logarithm is there given; and the logarithm of the fraction made by the product and that number (found by the series in page 109) added, if the product be the greater, or subtracted, if the less, will give the logarithm of the product; then subtracting the logarithm of the factor, the remainder is the logarithm of the given number; but if no such product can be had, then seek for some product composed of numbers in the tables, as shall have the first six, seven, or more figures thereof the same as those of the given number, or of some product of it made by one or more of the said numbers, by which its logarithm will be found as before.

Let the logarithm of (Π) 3·14159,26535,89793,23846,26433,83279,50288,41971,69399,37510,58209,74944,59230 (the circumference of a circle whose diameter is 1, or the measure of the arc of 180 deg. when the radius is 1) be sought, and thereby the logarithm of (M) the measure of the arc of 1 minute.

999998000000 divided by 314159 quotes 318310 nearly, which (being composed of 229 × 1390) is a fit multiplier for the number 3·14159 &c, whose product 1000000·35756,41670,85735,04401,53316,98563,06880,09915,15089,93387,45346, 13&c suits very well, being nearest 1000000 in table 6. But if no such product could have been found, or that it is known, the product of some others (as 313 × 271 divided by 27) will suit nearer, and shorten the operation: instead of the multiplier 318310, take 27, then the product is 84·82300, 16469,24417,43849,13713,48546,57787,33235,73783,12785,71663,23503,9921 $= b$, and the first five figures 84·823 (3·13 × 27·1) $= a$.

Let $\dfrac{b-a}{b+a} = \dfrac{x}{s}$ ...... $\dfrac{0{\cdot}00000,16469,24417,43849,13713,48546,57787,33235,73783,12785,71663,23504}{169{\cdot}64600,16469,24417,43849,13713,48546,57787,33235,73783,12785,71663,23504} = \text{A}.$

A	0·00000,00097,08006,09180,37507,16877,07959,99442,15465,88288,82125,59471,23822
$\frac{1}{3}A^3$	3,04978,24842,80129,87165,70018,85854,85688,49896
$\frac{1}{5}A^5$	17245,67496,58350,23735,18262
$\frac{1}{7}A^7$	1160,94659
Natural logarithm of $\frac{b}{a}$	0·00000,00097,08006,09180,37510,21855,32802,79572,19877,25804,26330,70055,86639

This multiplied by 0 86858,89638&c gives Briggs's logarithm of $\frac{b}{a}$.

Briggs's logarithm of $\frac{b}{a}$	0·00000,00084,32266,95190,70452,98319,82138,06447,38123,25534,00216,080009
Log. of 3·13	0·49554,43375,46448,48480,81265,04861,24315,15792,98693,98571,52993,196813
Log. of 27·1	1·43296,92008,74405,72952,11801,94875,18026,90280,28099,71147,47196,959683
Sum = log. of b	1·92851,36368,53121,16623,63519,980[illegible]6,21480,12520,04916,95253,00406,236505
Log. of 27 subtract	1·43136,37611,58987,31188,50837,0976[illegible],34592,76003,86592,57208,75944,8[illegible]5969
Log. of (Π) 3·14159&c	0·49714,98726,94133,85435,12682,88290,89887,36516,78324,38014,24461,340536
Log. of 10800 (=log. of 180+log. of 60) subtract	4·03342,37554,86949,70231,25014,99214,33198,11367,66355,49630,46771,104518
Log. of (M) 0·00029,08882&c	6·46372,61172,07184,15203,87067,89076,56689,25149,11968,88413,77080,236018

Note, The index of this last logarithm being −4, its complement (6) is set down, that it may be like those of the log. sines, tangents, &c.

2. *Any Logarithm being given, to find its corresponding Number to* 61 *Places of Figures.*

If the given logarithm be in either of the tables, its number is found in the same line prefixed.

If the given logarithm be not in the tables, then find the first seven or eight figures of the number by any other table of logarithms; and if six or all of them be the component of numbers in these tables, it will suit very well; but if not, the nearest number thereto, either greater or less, composed of these numbers, will do; for the logarithm of such component is had in these tables; then the number answering to the difference of the two logarithms (found by Dr. Halley's rule in page 110, for finding the number from the log. given) multiplied by that component, gives the number sought.

Let the example be to find the number represented by $\overline{1\cdot06}|^{\frac{1}{365}}$, or the amount of one pound for one day, at the rate of 6*l.* *per cent. per ann.* compound interest.

The log. of 1·06 (= log. of 0·53 + log. of 2)...	0·02530,58652,64770,24084,67311,96351,74961,94636,92282,75704,63219,045305
$\frac{1}{365}$ of log. of 1·06 = L	0·00006,93311,37711,69928,99910,44346,16917,70396,26554,19933,43734,846699

To which the nearest number of six figures (found in the first or general table) answering, though greater, composed of numbers in table 5, is 1·00016 (= 7·6 × 0·47 × 0·28) = b.

Log. of b (= log. of 7·6 + log. of 0·47 + log. of 0·28) =	0·00006,94815,58728,03751,77247,12696,73825,86672,64357,09684,49976,894931
From which subtract L	0·00006,93311,37711,69928,99910,44346,16917,70396,26554,19933,43734,846699
There will remain l	0·00000,01504,21016,33822,77336,68350,56908,16276,37803,79751,06242,048232

This multiplied by m = 2·30258 &c. produces $m\,l$ = 0·00000,03463&c = λ.

A	0·00000,03463,57189,89341,69713,22305,54835,82225,32861,41751,01028,013306
A^2	119,96530,29908,64503,38236,86101,03636,37764,19566,537177
A^3	4,15501,52514,24837,28993,16427,39396,16938,866927
A^4	14391,19406,44779,60302,49067,81615,535389
A^5	498,44935,35383,40809,76217,006709
A^6	17,26415,17395,73003,838899
A^7	59795,63082,412052
A^8	2071,064666
$1 + \frac{1}{2} A^2$	1·00000,00000,00059,98165,14954,32251,69118,43050,51818,18882,09783,268588
$\frac{1}{24} A^4$	599,63308,60199,15012,60377,82567,313975
$\frac{1}{720} A^6$	2397,79885,27184,727554
$\frac{1}{40320} A^8$	51366
Sum of the affirmative parts	1·00000,00000,00059,98165,14954,32851,32427,03249,69228,59145,19535,361483
A	0·00000,03463,57189,89341,69713,22305,54835,82225,32861,41751,01028,013306
$\frac{1}{6} A^3$	69250,25419,04139,54832,19404,56566,02823,144488
$\frac{1}{120} A^5$	4,15374,46128,19506,74801,808389
$\frac{1}{5040} A^7$	11,86421,246511
Sum of the negative parts	0·00000,03463,57189,89342,38963,47724,58979,52431,98394,17835,65074,212694
Result of the series	0·99999,96536,42870,08822,75990,85126,73447,50817,70834,41309,54461,148789

Which multiplied by 1·00016 gives $(1{\cdot}06^{\frac{1}{365}})$ 1·00015,96535,87452,94744,17155,00980,35475,25977,83917,74660,15415,862573

☞ If it be required to find the number represented by $1{\cdot}05^{\frac{1}{365}}$, or the amount of one pound for one day at the rate of 5*l.* *per cent. per ann.* compound interest.

The log. of 1·05 (= log. of 0·21 + log. of 5) = 0·02118,92990,69938 &c, and $\frac{1}{365}$ thereof is 0.00005,80528,74164 &c, = L, to which the nearest number of eight figures answering, but less, composed of numbers in table 5, is 1·0001334 (= 1·51 × 0·83 × 0·42 × 1·9) = a; this will converge swifter than the preceding. Such expedients may be found for most numbers that can be proposed.

Note, Of any number produced between the numbers in table 6, the logarithm may be most easily had to 30 places, by the several differences annexed.

OF THE TABLE OF HYPERBOLIC LOGARITHMS.

This is table 7, in pages 208 - - - 211, which contain the series of numbers 1·01, 1·02, 1·03, &c, to 10·00, with their hyperbolic logarithms to seven places of figures. They are so called because they square the asymptotic spaces of the right-angled hyperbola; and they are very useful in finding fluents, and the sums of infinite series. The table, as well as the following rules, were first given at the end of Simpson's fluxions, but they were rendered much more correct in the French edition of Gardiner's tables, printed at Avignon in 1770, being very incorrect in the last figure in Simpson's book. But both those books are very erroneous in the example for finding logarithms by the table.

1. *When the given Number is between* 1 *and* 10.

From the given number subtract the next less tabular number, divide the remainder by the said tabular number increased by half the remainder; add the quotient to the logarithm of the said tabular number, and the sum will be the logarithm of the number proposed.

Ex. To find the hyperbolic logarithm of 3·45678. Here the next less number is 3·45, and its logarithm 1·2383742, the remainder or dividend ·00678, its half 339, which joined to the tabular number 3·45, gives the divisor; the quotient ·0019633 added to the tabular logarithm 1·2383742, gives 1·2403375 the required logarithm of 3·45678.

3·45339) ·00678	(·0019633
	1·2383742
log.	1·2403375

2. *When the given Number exceeds* 10.

Find the logarithm of the number as above, supposing all the figures after the first to be decimals, then to that logarithm add 2·3025851, or 4·6051702, or 6·9077553, &c, according as the given number contains 2, or 3, or 4, &c, places of integers. That is, add 2·302585092994 multiplied by the index of the power of 10, by which the given number was divided to bring it to one integer, or within the limits of the table.

Ex. To find the hyperbolic logarithm of 345·678. This number divided by 100 or 10^2, to bring it within the limits of the table, or removing the decimal point two places, gives 3·45678, the logarithm of which as above found is 1·2403375, to which adding 4·6051702 the hyperbolic logarithm of 100, the sum is 5·8455077 the hyperbolic logarithm required of 345·678.

1·2403375
4·6051702
5·8455077

Note, The hyperbolic logarithm of any number may be also found from Briggs's logarithms, viz. multiplying Briggs's logarithm of the same number by the hyperbolic logarithm of 10, viz.

Multiplying by - - - - - 2·30258,50929,94045,68401,79914,
Or dividing by its reciprocal ·43429,44819,03251,82765,11289.

OF THE LOGISTIC LOGARITHMS.

These are in table 8, pages 212 - - - 216, which contain the logistic logarithm of every second as far as the first 80′ or 4800″.

The logistic logarithm of any number of seconds is the difference between the logarithm of 3600″ and the logarithm of that number of seconds.

The chief use of the table of logistic logarithms, is for the ready computing a proportional part in minutes and seconds, when two terms of the proportion are minutes and seconds, hours and minutes, or other numbers.

When two terms of the proportion are common numbers, their common logarithms may be used instead of their logistic logarithms, putting the logarithm where its complement should be, and the contrary.

1. *To find the Logistic Logarithm of any Number of Minutes and Seconds, within the Limits of the Table.*

At the top of the table find the minutes, and in the same column, even with the seconds on the left-hand side, is the logistic logarithm.

Note, When hours are made any terms of the proportion, they are to be taken as if they were minutes, and the minutes of an hour as if they were seconds.

2. *To find the Logistic Logarithm of any Number not exceeding 4800.*

In the 2d row, next the top of the table, find the number next less than that given; then in the same column, even with the difference on the left-hand side, is found the logistic logarithm.

When two given terms of the proportion are common numbers, one or both greater than 4800, take their halves, thirds, &c, instead of them. But when only one of the given terms is a common number, and that greater than 4800, take its half, third, &c, and multiply the 4th term by 2, 3, &c.

The logistic logarithms in this table are all affirmative, as well above as below 60′; but the index of those above 60′ is — 1; below 60′ down to 6′, the index is 0; and below 6′, the indices (being either 1, 2, or 3) are expressed in the table.

EXAMPLES.

As 60′	- -	lo. log.	As 60′	- -	lo. log.	As 60′	- -	lo. log.
To 46′ 12″	-	0·1135	To 78′ 27″	-	1·8836	To 1531	-	0·3713
So 8 7	-	0·8688	So 13 53	-	0·6357	So 40′ 12″	-	0·1135
To 6 15	-	0·9823	To 18 9	-	0·5193	To 1179	-	0·4848
As 46′ 12″	co.	$\bar{1}$·8865	As 78′ 27″	co.	0·1164	As 40′ 12″	co.	$\bar{1}$·8865
To 60 0	-	0·0000	To 60 0	-	0·0000	To 1179	- -	0·4848
So 6 15	-	0·9823	So 18 9	- -	0·5193	So 60′ 0″	-	0·0000
To 8 7	-	0·8688	To 13 53	-	0·6357	To 1531	- -	0·3713
As 60′	- co.	0·0000	As 24^h	- co.	$\bar{1}$·6021	As 24^h	- co.	$\bar{1}$·6021
To 4721	- -	$\bar{1}$·8823	To 46′ 11″	-	0·1137	To 76′ 34″	-	$\bar{1}$·8941
So 37′ 28″	-	0·2045	So 8^h 7′	- -	0·8688	So 13^h 53′	-	0·6357
To 2948	- -	0·0868	To 15′ 37″	-	0·5846	To 44′ 17″	-	0·1319
As 4721	- co.	0·1177	As 46′ 11″	co.	$\bar{1}$·8863	As 76′ 34″	co.	0·1059
To 60′ 0″	-	0·0000	To 24^h	- -	0·3979	To 24^h	- -	0·3979
So 2948	- -	0·0868	So 15′ 37″	-	0·5846	So 44′ 17″	-	0·1319
To 37′ 28″	-	0·2045	To 8^h 7′	-	0·8688	To 13^h 53′	-	0·6357

The logistic logarithms may conveniently be used in trigonometrical operations, when two of the terms are small arcs, with the logarithmic sines or tangents of other arcs; observing, that instead of the logarithmic sine or tangent, to take the complement of their logistic logarithm; and the contrary.

But this may be as readily and more naturally done by the logarithmic sines and tangents themselves of such small arcs, as taken from the next following table of sines and tangents for every second of the first 2° or 120′.

OF THE LOGARITHMIC SINES AND TANGENTS TO EVERY SECOND.

Table 9, pages 218 - - 247, contains the log. sines and tangents for every single second of the first 2 degrees of the quadrant; the sines being placed on the left-hand pages, and the tangents on the right. The degrees and minutes are placed at the top of the columns, and the seconds on the left-hand side, of each page, the logarithmic sine or tangent being found in the common angle of meeting. So of 1° 52′ 54″ the log. sine is 8·5163420, and the log. tangent 8·5165762.

The same numbers are also the cosines and cotangents of the last 2 degrees of the quadrant, those degrees with their minutes being placed at the bottom of the columns, and their seconds ascending

on the right-hand side of the pages. So the cosine of 88° 7′ 6″ is 8·5163420, and its contangent 8·5165762.

When it is required to find the sine or tangent &c to 3ds &c, or any other fractional part of a second, subtract the tabular sine or tangent of the complete seconds from the next to it in the table, and take the like proportional part of the differenee; which part added to, or taken from, the said tabular sine or tangent, according as it is increasing or decreasing, will give the sine or tangent required.

Ex. To find the log. sine of 1° 52′ 54″ 25‴ or 1° 52′ 54″ $\frac{25}{60}$ or $\frac{5}{12}$.

Here the sine of 1° 52′ 54″ taken from the next leaves 641, which multiplied by 5 and divided by 12, or multiplied by 25 and divided by 60, gives 267 the pro. part; this added to the first sine gives that which was required.

1° 52′ 54″ sine	8·5163420
1 52 55 -	8·5164061
	dif. 641
	5
	12)3205
pro. part.	267
1° 52′ 54″ -	8·5163420
1° 52′ 54″ 25‴	8·5163687

On the contrary, if a sine or tangent be given, to find the corresponding arc; take the difference between it and the next less tabular number, and the difference between the next less and greater tabular numbers, so shall the less difference be the numerator, and the greater the denominator, of the fractional part to be added to the arc of the less tabular number; which fraction may also, if required, be either turned into a decimal, or into 3ds &c, by multiplying the numerator by 60, and dividing by the denominator.

Ex. To find the arc whose sine is 8·5163900.

Finding the number is between the sines of 1° 52′ 55″ and 1° 52′ 54″, take the differences between the sines as in the margin, and the differences give $\frac{480}{641}$ for the fraction of a second, or $\frac{48}{64}$ nearly, which abbreviates to $\frac{3}{4}$″ = 45‴; and therefore the arc sought is 1° 52′ 54″ 45‴.

1° 52′ 55″	-	8·5164061
1 52 54	-	8·5163420
1 52 54 45‴		8·5163900
		diff. - - 480
		diff. - - 641

Where the 1st differences of the sines and tangents alter much, as near the beginning of the table, the 2d, 3d, &c, differences may be taken in, and then the logarithmic sine or tangent will be expressed by this series, viz.

$$Q = A + xD' + x.\frac{x-1}{2}D'' + x.\frac{x-1}{2}.\frac{x-2}{3}D''' \text{ \&c, or nearly } A + \overline{D' - \tfrac{1}{2}D''}.\,x;$$

where A is the next less tabular logarithm, D′, D″, D‴, &c, the 1st, 2d, 3d, &c, differences of the tabular logarithms, and x the fractional part of the arc over the complete seconds.

Ex. To find the log. tangent of $5' \, 1'' \, 12''' \, 24''''$ or $5' \, 1'' \, \frac{62}{300}$ or $5' \, 1'' \cdot 206$.

	Tang.	D′	D″
5′ 0″	- 7·1626964		
		14453	
5 1	- 7·1641417		-49
		14404	
5 2	- 7·1655821		-47
		14357	
5 3	- 7·1670178		

Here $A = 7 \cdot 1641417$; $x = \frac{62}{300}$; $D' = 14404$; and the mean 2d diff. $D'' = -48$. Hence

A - - - -	7·1641417
$x D'$ - - - - - -	2977
$x . \frac{x-1}{2} D''$ - - - - - -	4
Therefore the tangent of $5' \, 1'' \, 12''' \, 24''''$ - - - - -	7·1644398

And on the other hand, when the sine or tangent is given, and falls near the beginning of the table, from the same series we may find x the fractional part of a second. For suppose it be required to find the arc whose tangent is 7·1644398. This falling between the tangents of 5′ 1″ and 5′ 2″, take the differences, &c, as above, and the series gives $7 \cdot 1644398 = 7 \cdot 1641417 + x D' + x . \frac{x-1}{2} D''$; or $2981 = 14404 \, x - 24 . \overline{x^2 - x}$, or $-24 \, x^2 + 14428 \, x = 2981$; which gives $x = \cdot 2067''$ nearly $= 12''' \, 24''''$. Therefore the arc required is $5' \, 1'' \, 12''' \, 24''''$. Or rather the approximate value $A + D' - \frac{1}{2} D'' . x = Q$, gives $x = \frac{Q - A}{D' - \frac{1}{2} D''} = \frac{2981}{14404 + 24} = \frac{2981}{14428} = \cdot 2067$, the same as before.

OF THE LARGE TABLE OF NATURAL AND LOGARITHMIC SINES, TANGENTS, SECANTS, AND VERSED SINES.

Table 10, page 248 - - - - 337, contains all the sines, tangents, secants, and versed sines, both natural and logarithmic, to every minute of the quadrant, the degrees at top, and minutes descending down the left-hand side as far as 45°, or the middle of the quadrant, and from thence returning with the degrees at the bottom, and the minutes ascending by the right-hand side to 90°, or the other half of the quadrant, in such sort, that any arc on the one side is on the same line with its complement on the other side; the respective sines, cosines, tangents, cotangents, &c, being on the same line with the minutes, and in the columns signed with their respective names, at top when the degrees are at top, but at the bottom when the degrees are at the bottom. The natural sines, tangents, &c, are placed all together on the left-hand pages, and the logarithmic ones all together, facing them, on the right-hand pages. Also in the naturals there are two columns of the common differences, and in the logarithmic 3 columns of common differences, each column of differences being placed between the two columns of numbers having the same differences; so that these differences serve for both their right-hand and left-hand adjacent columns: also each differential number is set opposite the space between the numbers whose difference it is. The numbers on the same line in those columns having such common differences, are mutually complements

of each other; so that the sum of the decimal figures of any two such numbers, is always 1 integer, with 0 in each place of decimals.

All this will be evident by inspecting one page of each sort, as well as the method of taking out the sine, &c, to any degrees and complete minutes. It is however to be observed, that in all the log. sines, tangents, &c, and in such of the natural as have any significant figure for their index or characteristic, the indices are expressed in the table, and the separating point is placed between the index and the decimal part of the number; but in several columns of the natural sines, &c, having 0 for their integer or index, both the index and decimal separating point are omitted; and wherever this is the case, it is to be understood that all the figures in such columns are decimals, wanting before them only the separating point and index 0.

The sine, tangent, or secant of any arc, has the same value, or is expressed by the same number, as the sine, tangent, or secant of the supplement of that arc; for which reason the tables are carried only to a quadrant or 90 degrees. So that when an arc is greater than 90°, subtract it from 180°, and take the sine, tang. or secant of the remainder, for that of the arc given. But this property does not take place between the versed sines of arcs and their supplements: and to find the versed sine of an arc greater than 90°, proceed thus: in the natural versed sines, to radius add the natural cosine, the sum will be the natural versed sine; and in the log. versed sines, add 0·3010300 to twice the log. sine of half the arc, the sum, abating radius 10·0000000, will be the log. versed sine required.

1. *Given any Arc; to find its Sine, Cosine, Tangent, &c.*

Seek the degrees at the top or bottom, and the minutes respectively on the left or right; then on the same line with these is the sine, &c, each in its proper column, the title being at the top or bottom, according as the degrees are.

But when the given arc contains any parts of a minute, intermediate to those found in the table: take the difference between the tabular sines, &c, of the given degrees and minutes, and of the minute next greater; then take the proportional part of that difference for the parts of the minute, and add to it the sine, tangent, secant, and versed sine, or subtract it from the cosine, cotangent, cosecant, or coversed sine, of the given degrees and minutes; so shall the sum or remainder be the sine, &c, required.

Note, The proportional part is found thus, as 1′ is to the given intermediate part of a minute, so is the whole difference to the proportional part required; which therefore is found by multiplying the difference by the said intermediate part. Also that intermediate part may be expressed either by a vulgar fraction, or a decimal, or a sexagesimal in seconds, thirds, &c, and the fraction or sexagesimal

may be first reduced to a decimal, if it be thought better so to do, by dividing the numerator of the fraction by the denominator, or by dividing the sexagesimal by 60.

EXAMPLES.

1. To find the natural sine of 1° 48′ 28″ 12‴.

In the column of difference between the natural sines of 1° 48′ and 1° 49′ is the difference 2907; and 28″ 12‴ being = 28·2″ = ·47′; therefore as 1 : 2907 : : ·47 : the pro. part + 1306

to which add sin. 1° 48′	0314168
makes sin. of 1° 48′ 28″ 12‴	0315474

2. To find the natural tangent of 8° 9′ 10″ 24‴.

8° 10′ tang. - -	1435084
8 9 - -	1432115
diff.	2969
1 : 2969 : : (10″ 24‴ =) ·17′ $\frac{1}{3}$:	+ 515
8° 9′ - -	1432115
8° 9′ 10″ 24‴ -	1432630

3. To find the nat. coversed sine of 4° 6′ 5″ 40‴.

1 : 2902 (tab. dif.) : : $\frac{17}{180}$′ = 5″ 40‴ : pro. part -	—274
4° 6′ covers - -	9285026
4° 6′ 5″ 40‴ -	9284752

4. To find the logarithmic cosine of 6° 8′ 42″

1:136 (tab. dif.) : : ·7′ = 42″ : pr. pt.	- 95,
6° 8′ cosine -	9·9975069
6° 8′ 42″ - -	9·9974974

5. To find the log. sec. of 7° 12′ 50″.

1:160 tab. dif. : : $\frac{5}{6}$′ = 50″ : pr. pt.	+ 133
7° 12′ secant -	10·0034381
7° 12′ 50″ -	10·0034514

6. To find the logarithm cotangent of 39° 4′ 12″ 20‴.

1 : 2581 tab. dif. : : ·20$\frac{5}{9}$ = 12″ 20‴ : pro. part.	—531
39° 4′ cotan. -	10·0905978
39° 4′ 12″ 20‴ -	10·0905447

The foregoing method of finding the proportional part of the tabular difference, to be added or subtracted, by one single proportion, is only true when those differences are nearly equal, and may do for all except for the tangents and secants of large arcs near the end of the quadrant in the natural sines, &c, and in the log. sines, &c, except the sines and versed sines of small arcs, the tangents of both large and small arcs, and the secants of large arcs. And when much accuracy is required, these excepted parts may be found by the series used in the last article, viz. $Q = A + x D' + x \cdot \frac{x-1}{2} D'' + x \cdot \frac{x-1}{2} \cdot \frac{x-2}{3} D'''$ &c. or $= A + \overline{D' - \frac{1}{2}D''} \cdot x$ nearly; where A is the tabular number for the degrees and minutes, D', D'', D''', &c, the 1st, 2d, 3d, &c tabular differences, and x the fractional part over the complete minutes, &c; at least it may be proper to find the tangents and secants of very large arcs from this series; but as to the log. sines, versed sines, and tangents of small arcs, they may also be found, perhaps easier, from their corresponding natural ones, viz. find the natural sine, versed sine, or tangent

of the given small arc, and then find the log. of such natural number by the 1st or large table of logarithms, which will be the log. sine, &c, required. And the log. tangent and secant of large arcs will be also found by taking the difference between 20 and their log. cotangent and cosine respectively. And lastly, the natural tangents and secants of large arcs may also be found by first finding their log. tangent and secant, and then finding the corresponding number.

EXAMPLES.

1. To find the log. sine of 1° 48′ 28″ 12‴.

The natural sine, found in Ex. 1. above is 315474; and the log. of this is 8·4989636 which is the log. sine required.

2. To find the log. vers. of 1° 48′ 28″ 12‴

1° 48′ nat. vers. - - -	0004934
1 : 92 tab. dif. : : ·47′ = 28″ 12‴ : +	43
1° 48′ 28″ 12‴ nat. vers. -	·0004977
Its log. 1 48 28 12 log. vers.	6·6969676

3. To find the log. tang. of 2° 23′ 33″ 36‴.

2° 23′ its nat. tan. - -	0416210
1 : 2914 tab. dif. : : ·56′ = 33″ 36‴ : +	1632
2° 23′ 33″ 36‴ nat. tan. -	0417842
Its log. 2 23 33 36 log. tang.	8·6210121

4. To find the log. tang. of 87° 36′ 26″ 24‴.

Its complement is - - -	2 23 33 36
Whose log. tang. in Ex. 3 is	8·6210121
Taken from - - - - -	20·0000000
Leaves log. tan. 87° 36′ 26″ 24‴	11·3789879

5. To find the log. sec. of 88° 11′ 31″ 48‴.

Its complement is - -	1 48 28 12
Its log. sine in Ex. 1 is - -	8·4989636
Which taken from - - -	20·0000000
Leaves lo. sec. 88° 11′ 31″ 48‴	11·5010364

6. To find the nat. sec. of 88° 11′ 31″ 48‴.

		nat. sec.	D′	D″	D‴
88°	9′	30·976074			
			281503		
88	10	31·257577		5166	
			286669		144
88	11	31·544246		5310	
			291979		149
88	12	31·836225		5459	
			297438		
88	13	32·133663			

Hence A = 31·544246; D′ = 291979;
D″ = 5310; the mean D‴ = 146;

$x = \cdot 53' = 31''\,48'''$; $x.\frac{x-1}{2} = -\cdot 12455$;

$x.\frac{x-1}{2}.\frac{x-2}{3} = \cdot 06125.$

Then A - - - - - - - -	31·544246
x D′ - - - - - - - - -	154746
$x.\frac{x-1}{2}$ D″ - - - - - - -	−664
$x.\frac{x-1}{2}.\frac{x-2}{3}$ D‴ - - - - - -	9
	31·698339

In the 6th example, the natural secant is found by the differential series to be 31·698339. But by taking the number to the logarithm of it, as found in the 5th example, it is 31·698333; which seems to be the more accurate, as well as the easier way; and indeed this method by the series seems to be, in some instances, more troublesome, and less accurate, than finding the secant by dividing 1 by the cosine.

2. *Given any Sine, Tangent, &c. to find its Arc.*

Take the difference between the next less and greater tabular numbers of the same kind, and the difference between the given number and said next less or next greater tabular number, according as the given number is a sine, tangent, &c, or a cosine, cotangent, &c, noting its degrees and minutes; then the two differences will be the terms of a vulgar fraction of a minute, to be added to those minutes, to give the arc required.

And this vulgar fraction may also, if required, be reduced to a decimal by dividing the less or numerator by the denominator, or brought to sexigesimals, by multiplying by 60, &c. Also, where the tabular differences are printed, the subtraction of the less tabular number from the greater is saved.

EXAMPLES.

1. To find the arc to the natural sine ·0315474.

```
Ans. 1° 48′ 28″ 12‴   0315474
Subtr. 1 48′ next less 0314108
                       -------
                          1366
                            60
Tab. diff.  -  2907 ) 81960 ( 28″
                      5814
                      -----
                      23820
                      23256
                      -----
                        564
                         60
               2907 ) 33840 ( 12‴
```

2. To find the arc to natural tang. ·1432630

```
Next greater   -     1435084
Ans. 8° 9′ 10″ 24‴   1432630
Next less,subt. fr. each 1432115
                     -------
                         515
                          60
Tab. difference  2909 ) 30900 ( 10″
                        29690
                        -----
                         1210
                           60
                        72600 ( 24‴
                         5938
                        -----
                        13220
```

3. To find the arc to logarithm cosine 9·9974974.

```
          6° 8′   -   9·9975069
Answer 6° 8′ 42″     9·9974974
                     ---------
                            95
                            60
Tab. difference     136)5700
                         544
                         ---
                         260
```

4. To find the arc to logarithm cot. 10·0905447.

```
       39° 4′    -   10.0905978
Ans. 39° 4′ 12″ 20‴ 10·0905447
                    ----------
                           531
                            60
Tab. difference  2581 ) 31860 ( 12″
                        2581
                        -----
                         6050
                         5162
                         ----
                          888
                           60
                 2581 ) 53280 ( 20‴
                        5162
                        ----
                         1660
```

The above method of proportioning by the first difference alone, can only be true when the other differences are nothing, or very small; but other means must be used when they are large, viz. for the natural tangents and secants of very large arcs; and for the logarithmic sines, and versed sines of small arcs, also the log. secants of large arcs, with the log. tangents and cotangents both of small and large arcs. When the log. sine, versed sine, or tangent of a small arc is given, by means of the table of logarithms find the corresponding natural number, and then the arc answering to it in the table of natural sines, &c. But when the log. tangent or secant of a large arc is proposed, subtract it from 20, the remainder is the log. cotangent or cosine, which will be the log. tangent or sine of a small arc which is the complement of that required, which complement will be found as in the last remark, by taking the corresponding natural number, and finding it in the natural tangents or sines; then subtracting that complemental arc from 90°, leaves the required large arc answering to the proposed log. tangent or secant. And when the natural tangent or secant of a large arc is proposed, change it into the log. tangent or secant of the same, by taking the log. of the proposed natural number; then proceed with it as above in the last remark.—Or, what relates to the log. sines and tangents of small arcs, or cosines and cotangents of large ones, will be best performed by the foregoing table for every second of the first 2 degrees.

EXAMPLES.

1. To find the arc to natural tangent 50·0000000.

	20·0000000
Given 50·0000000 its log.	11·6989700
·02 - - - - -	8·3010300
·0197830 nat. tan. of 1° 8′	

2170
60
2910) 130200 (44″
1164
1380
1164
216
60
12960 (44‴
1164
1320

Hence from - -	90° 0′ 0″ 0‴
Take the comp. -	1 8 44 44
Leaves arc required	88 51 15 16

2. To find the arc to natural secant 31·6983333.

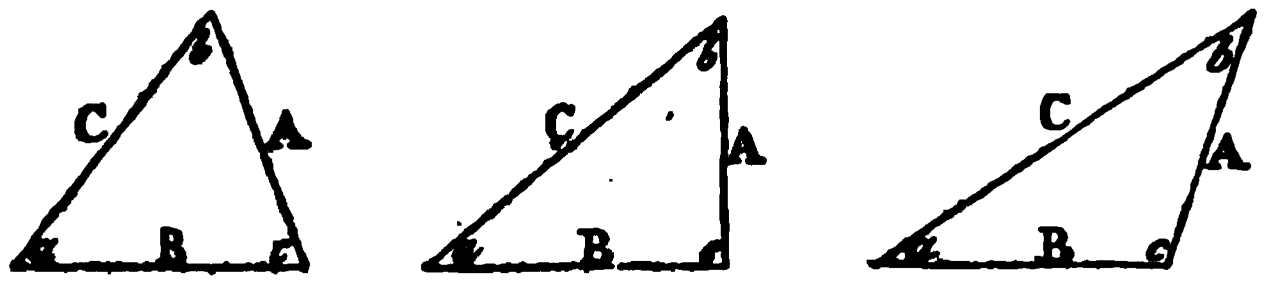
	20·0000000
Given 31·698⅓ its log.	11·5010365
·0315474 - -	8·4989635
·0314108 nat. sine of 1° 48′	

1366
60
2907) 81960 (28″
5814
23820
23256
564
60
33840 (12‴
2907
4770

Hence from - -	90° 0′ 0″ 0‴
Take the comp.	1 48 28 12
Leaves arc required	88 11 31 48

TRIGONOMETRICAL RULES.

1. In a right-lined triangle, whose sides are A, B, C, and their opposite angles, a, b, c; having given any three of these, of which one is a side; to find the rest.



Put s for the sine, s′ the cosine, t the tangent, and t′ the cotangent, of an arch or angle, to the radius r; also L for a logarithm, and L′ its arithmetical complement. Then

Case 1. When three sides A, B, C, are given.

Put $P = \frac{1}{2}.\overline{A + B + C}$ or semiperimeter.

Then $s.\frac{1}{2}c = r\sqrt{\frac{(P-A)\times(P-B)}{A\times B}}$.

And $s'.\frac{1}{2}c = r\sqrt{\frac{P\times(P-C)}{A\times B}}$.

$L.s.\frac{1}{2}c = \frac{1}{2}.(L.\overline{P-A} + L.\overline{P-B} + L'A + L'B)$.

$L's.\frac{1}{2}c = \frac{1}{2}(L.P + L.\overline{P-C} + L'A + L'B)$.

Note, When $A = B$, then

$s.\frac{1}{2}c = \frac{C}{A}\times\frac{r}{2}$. And $s'\frac{1}{2}c = r\sqrt{\frac{A^2-\frac{1}{4}C^2}{A^2}}$.

Case 2. Given two sides A, B, and their included angle c.

Put $s = 90^\circ - \frac{1}{2}c$, and $t.d = \frac{A-B}{A+B}\times t.s$; then $a = s + d$; and $b = s - d$. And $C = \sqrt{\left(\frac{4AB\times s^2\frac{1}{2}c}{rr} + \overline{A-B}\right|^2)}$.

Or in logarithms, putting $L.Q = 2L.(A-B)$. and $L.R = L.2A + L.2B + 2L.s.\frac{1}{2}c - 20$, then $L.C = \frac{1}{2}L.(Q+R)$.

If the angle c be right, or $= 90^\circ$; then

$t.a = \frac{A}{B}r$; $t.b = \frac{B}{A}r$;

$C = \frac{r}{s.a}A$, or $= \frac{r}{s.b}B$, or $= \sqrt{A^2 + B^2}$.

$$\left.\begin{array}{l}\text{If } A = B\text{; then}\\ a = b = 90^\circ - \frac{1}{2}c\text{, and}\end{array}\right\}C = \frac{s.\frac{1}{2}c}{r}\times 2A$$

Case 3. When a side and its opposite angle are among the terms given.

Then $\frac{A}{s.a} = \frac{B}{s.b} = \frac{C}{s.c}$; from which equations any term wanted may be found.

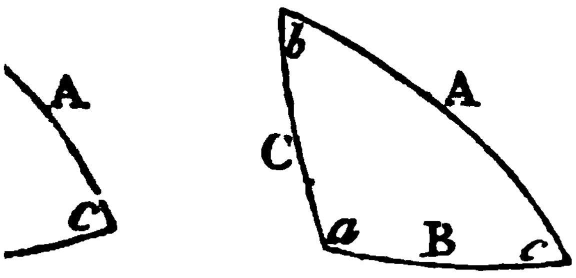
When an angle, as a, is 90°, and A and C are given, then

$B = \sqrt{(A^2 - C^2)} = \sqrt{\overline{(A+C)\times(A-C)}}$.

And $L.B = \frac{1}{2}(L.\overline{A+C} + L.\overline{A-C})$.

Note, When two sides A, B, and an angle a opposite to one of them, are given; if A be less than B, then b, c, C, have each two values; otherwise, only one value.

ic triangle, whose three sides are A, B, C, and their opposite angles, *a*, *b*, *c*; any three of these six terms being given, to find the rest.



ren the three sides A, B, C.
perim. or $P = \frac{1}{2}(A+B+C)$.
: $r\sqrt{\frac{s.(P-A) \times s.(P-B)}{s.A \times s.B}}$.
: $r\sqrt{\frac{s.P \times s.(P-C)}{s.A \times s.B}}$.
$\overline{P-A} + L.s.\overline{P-B} + L's.A + L's.B)$
$P + L.s.\overline{P-C} + L's.A + L's.B)$.
for the other angles.

Given the three angles.
$- b + c$. Then
$\frac{s'p \times s'(p-c)}{s.a \times s.b}$. And
$\frac{s'(p-a) \times s'(p-b)}{s.a \times s.b}$.
$s'p + L.s'\overline{p-c} + L's.a + L's.b)$
$s'\overline{p-a} + L.s'\overline{p-b} + L's.a + L's.b)$
for the other sides.
sign 7 signifies greater than,
ian; also ∽ the difference.

n A, B, and included angle *c*.
igle *a* opposite the side A, let
: t. M, like or unlike A, as *c* is
; also N = B ∽ M:
M : : t. *c* : t. *a*, like or unlike
as M is 7 or ∠ B.
A + B : s' ½. A ∽ B : : t' ½*c* :
s 7 or ∠ 90°. as A + B is 7 or
d s.½. A + B : s. A ∽ B : : t' ½
90°, then *a* = M + N; and *b* =

: *r* : s' *c* : : t. A : t. M, like or un-
s 7 or ∠ 90°; and N = B ∽ M.

Then s' M : s' N : : s'A : s' C, like or unlike N as *c* is 7 or ∠ 90°. Or,

$s.\frac{1}{2}C = \sqrt{\frac{s.A \times s.B \times s^2\frac{1}{2}c}{rr} + s^2\frac{1}{2}.\overline{A ∽ B}}$.

In logarithms, put L. Q = 2 L. s. ½ A ∽ B; and L. R = L. s. A + L. s. B + 2 L. s. $\overline{\frac{1}{2}c - 20}$; then L. s. ½ C = ½ L. (Q + R).

Case 4. Given *a*, *b*, and included side C.

First, let *r* : s' C : : t. *a* : t' *m*, like or unlike *a* as C is 7 or ∠ 90°; also *n* = *b* ∽ *m*. Then s' *n* : s' *m* : : t. C : t. A, like or unlike *n* as *a* is 7 or ∠ 90°.

Or, let s' ½.*a* + *b* : s' ½. *a* ∽ *b* : : t. ½ C : t. M, 7 or ∠ 90° as *a* + *b* is 7 or ∠ 180°; and s. ½ *a* + *b* : s. ½ *a* ∽ *b* : : t. ½ C : t. N, 7 90°; then A = M ± N; and B = M ∓ N.

Again, let *r* : s' C : : t. *a* : t' *m*, like or unlike *a* as C is 7 or ∠ 90°; and *n* = *b* ∽ *m*: then s. *m*. : s. *n* : : s' *a* : s' *c*, like or unlike *a* as *m* is 7 or ∠ *b*.

Case 5. Given A, B, and an opposite angle *a*.

1st. s. A : s. *a* : : s. B : s. *b*, 7 or ∠ 90°.

2nd. Let *r* : s' B : : t. *a* : t' *m*, like or unlike B as *a* is 7 or ∠ 90°;
and t. A : t. B : : s' *m* : s' *n*, like or unlike A as *a* is 7 or ∠ 90°;
then *c* = *m* ± *n*, two values also.

3dly. Let *r* : s' *a* : : t. B : t. M, like or unlike B as *a* is 7 or ∠ 90°;
and s' B : s'A : : s' M : s' N, like or unlike A as *a* is 7 or ∠ 90°;
then C = M ± N, two values also.

But if A be equal to B, or to its supplement, or between B and its supplement; then is *b* like to B: also *c* is = *m* ± *n*, and C = M ∓ N, as B is like or unlike *a*.

Case 6. Given *a*, *b*, and an opposite side A.

1st. s. *a* : s. A. : : s. *b* : s. B, $>$ or $<$ 90°.

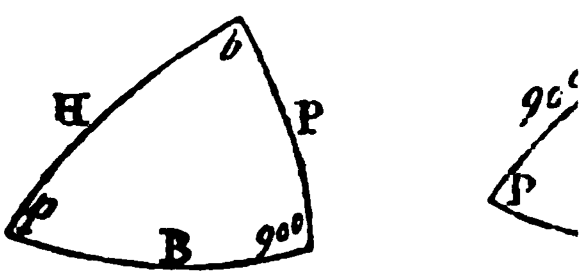
2nd. Let *r* : s′ *b* : : t. A : t. M, like or unlike *b* as A is $>$ or $<$ 90°;
and t. *a* : t. *b* : : s. M. : s. N, $>$ or $<$ 90°:
then C = M $\pm$ N, as *a* is like or unlike *b*.

3dly. Let *r* : s′ A : : t. *b* : t′ *m*, like or unlike *b* as A $>$ or $<$ 90°;
and s′ *b* : s′ *a* : : s. *m* : s. *n*, $>$ or $<$ 90°:
then *c* = *m* $\pm$ *n*, as *a* is like or unlike *b*.

But if A be equal to B, or to its supplement, or between B and its supplement; then B is unlike *b*, and only the less values of N, *n*, are possible.

Note, When two sides A, B, and their opposite angles *a*, *b*, are known; the third side C, and its opposite angle *c*, are readily found thus:

s. ½ *a* ∽ *b* : s. ½. *a* + *b* : : t. ½ A ∽ B : t. ½ C.
s. ½. A ∽ B : s. ½. A + B : : t. ½. *a* ∽ *b* : t. ½ *c*.



III. In a right-angled sph
where H is the hypotenuse, or
the right angle, B, P, the other t
b, *p*, their opposite angles; any
five terms being given, to find
cases, with their solutions, are
lowing table.

The same table will also
quadrantal triangle, or that w
side = 90°, H being the angl
that side, B, P, the other two
p, their opposite sides: observi
H to take its supplement: or
changing the terms *like* and un
other where H is concerned,
value is taken.

Case	Given	Req^d	SOLUTIONS.
1	H B	*b* *p* P	s. H : *r* : : s.B : s.*b*, and is like B *r* : t′.H : : t.B : s′.*p* } s′.B : *r* : : s′.H : s.P } , $>$ or $<$ 90° as H is like or
2	H *b*	B P *p*	*r* : s.H : : s.*b* : s.B, like *b* *r* : s′.*b* : : t.H : t.P } *r* : s′.H : : t.*b* : t′.*p* } , $>$ or $<$ 90° as H is like o
3	B *b*	H P *p*	s.*b* : *r* : : s.B : s.H } *r* : t.B : : t′.*b* : s.P } , each $>$ or $<$ 90°; both v s′.B : *r* : : s′.*b* : s.*p* }
4	B *p*	H *b* P	*r* : t′.B : : s′.*p* : t′.H, $>$ or $<$ 90° as B is like or u *r* : s′.B : : s.*p* : s′.*b*, like B *r* : s.B : : t.*p* : t.P, like *p*
5	B P	H *b* *p*	*r* : s′.B : : s′.P : s′.H, $<$ or $>$ 90° as B is like or u *r* : s.P : : t′.B : t′.*b*, like B *r* : s.B : : t′.P : t′.*p*, like P
6	*p* *b*	H B P	*r* : t′.*b* : : t′.*p* : s′.H, $>$ or $<$ 90° as *b* is like or unl s.*p* : *r* : : s′.*b* : s′.B, like *b* s.*b* : *r* : : s′.*p* : s′.P, like *p*

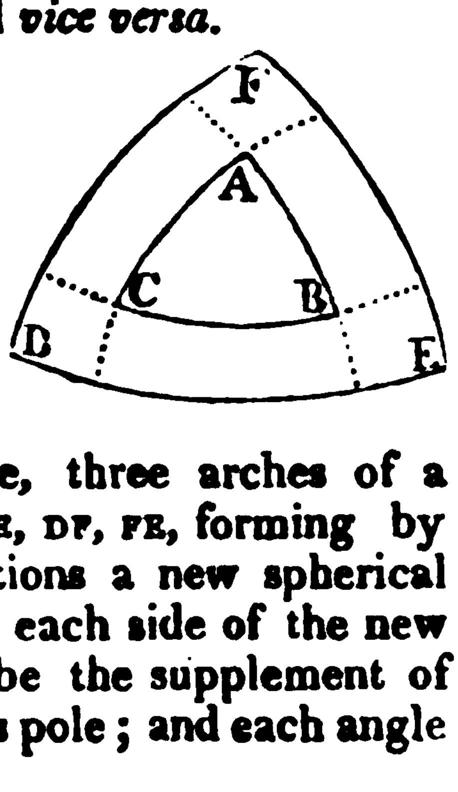
The following Propositions and Remarks, concerning Spherical Triangles, (selected and communicated by the Reverend Nevil Maskelyne, D. D. Astronomer Royal, F. R. S.) will also render the Calculation of them perspicuous, and free from Ambiguity.

" 1. A spherical triangle is equilateral, isoscelar, or scalene, according as it has its three angles all equal, or two of them equal, or all three unequal; and *vice versa.*

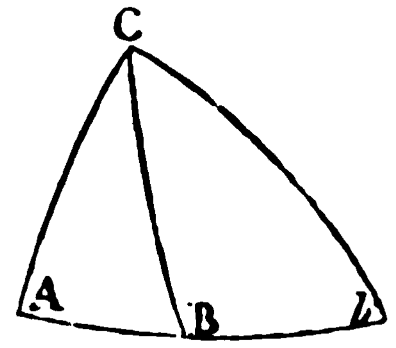
2. The greatest side is always opposite the greatest angle, and the smallest side opposite the smallest angle.

3. Any two sides taken together, are greater than the third.

4. If the three angles are all acute, or all right, or all obtuse; the three sides will be, accordingly, all less than 90°, or equal to 90°, or greater than 90°; and *vice versa.*



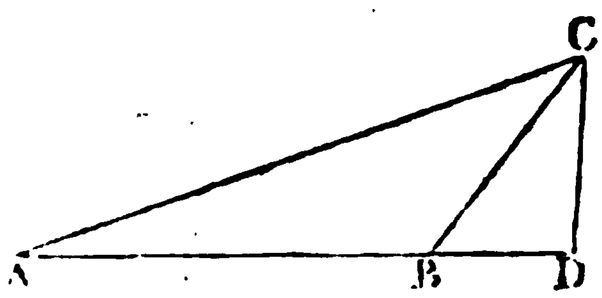
5. If from the three angles A, B, C, of a triangle ABC, as poles, there be described, upon the surface of the sphere, three arches of a great circle DE, DF, FE, forming by their intersections a new spherical triangle DEF; each side of the new triangle will be the supplement of the angle at its pole; and each angle of the same triangle, will be the supplement of the side opposite to it in the triangle A B C.



6. In any triangle A B C, or A *b* C, right angled in A, 1st, The angles at the hypotenuse are always of the same kind as their opposite sides; 2dly, The hypotenuse is less or greater than a quadrant according as the sides including the right angle are of the same or different kinds; that is to say, according as these same sides are either both acute or both obtuse, or as one is acute and the other obtuse. And, *vice versa,* 1st, The sides including the right angle, are always of the same kind as their opposite angles: 2dly, The sides including the right angle will be of the same or different kinds, according as the hypotenuse is less or more than 90°: but one at least of them will be of 90°, if the hypotenuse is so."

THE CASES OF PLANE TRIANGLES RESOLVED BY LOGARITHMS.

In this and the following solutions of spherical triangles, it is to be observed, that when we say the sine, tangent, &c, we mean the logarithmic sine, tangent, &c, as found by the table.



Prop. I. *Having the angles, and one side; to find either of the other sides.*

Add the logarithm of the given side to the sine of the angle opposite to the side required, and from the sum subtract the sine of the angle opposed to the given side; the remainder will be the logarithm of the side required.

Example. In the triangle BCD, having the angle CDB 90°, CBD 51° 56′, BCD 38° 4′ and the side BD 197·3; to find the side CD.

2·2951271 log. of 197·3.
9·8961369 sin. of 51° 56′
12·1912640 sum
9·7899880 sin. of 38·4
2·4012760 log. 251·9278 CD req.

Or you may add the complement of the sine of the angle opposed to the given side, to the two other logarithms, the sum (abating radius) is the logarithm of the side required; as shown in art. 3 of Log. Arith. And it is to be observed that the complements of the sines in the table are to be found in the columns of the cosecants: for (passing over the first unit) the cosecants of the same arcs are the complements of the same sines. Also the complements of the tangents, are the cotangents.

Example. The sine of 38° 4′ being 9·7899880, the cosecant of 38° 4′ is 10·2100120, which (omitting the first unit) is the complement of the said sine.

0·2100120 co. of sin. 38° 4′
2·2951271 log. of 197·3
9·8961369 sin. of 51° 56′
2·4012760 log. 251·9278, as before.

But if one side and the angles, of a right-angled triangle, be known, and you would have the other side, as in the former example, the operation will be easier thus:

Add the tangent of the angle opposite to the side required, to the logarithm of the given side, the sum (abating radius) is the logarithm of the side required.

10·1061489 tan. 51° 56′
2·2951271 log. of 197·3
2·4012760 log. 251·9278 as before.

Prop. II. *Having two sides, and an angle opposite to one of them; to find the other two angles, and the third side.*

Add the sine of the angle given, to the logarithm of the side adjoining that angle, and from the sum subtract the logarithm of the side opposite to that angle, or add its arithmetical comp. the remainder or sum will be the sine of the angle opposite to the adjoining side.

Example. In the triangle A B C, having the side AC 800, BC 320, and

the angle ABC 128° 4′; to find the angles BAC, ACB, and the side AB.

7·0969100 ar. com. log. 800.
2·5051500 log. of 320.
9·8961369 sin. 128° 4′.
0·4981969 sin. 18 21 BAC.

Having BAC and ABC, the angle ACB is their supplement to 180°, viz. 33° 35′; and you may find the side AB by the first proposition.

Prop. III. *Having two sides and the angle between them; to find the other two angles, and the third side.*

If the angle included be a right angle, add the radius to the logarithm of the less side, and from the sum subtract the logarithm of the greater side, or add its arith. comp.: the remainder or sum will be the tangent of the angle opposed to the less side.

Example. In the triangle BCD, having the side BB 197·3, and CD 251·9; to find the angles BCD, CBD, and the side CB.

7·5987728 ar. com. log. 251·9
12·2951271 rad. + log. 197·3
9·8938989 tan. 38° 4′ BCD.

But if the angle included be oblique, add the logarithm of the difference of the given sides to the tangent of half the sum of the unknown angles, and from the sum subtract the logarithm of the sum of the given sides, or add its complement; the remainder or sum will be the tangent of half their difference.

Example. In the triangle ABC, having the side AB 562, BC 320, and the angle ABC 128° 4′; to find the angles BAC, ACB, and the side AC.

The sum of the given sides is 882, and the difference 242, the half sum of the unknown angles is 25° 58′.

7·0545314 com. log. 882
2·3838154 log. of 242
9·6875402 tang. 25° 58′
0·1258870 tang. 7 37

		25	58
Angle ACB	-	33	35 sum,
Angle CAB	-	18	21 dif.

These 7° 37′ being added to 25° 58′ the half-sum of the angles unknown, the sum is 33° 35′ for the greater angle ACB; and the same 7° 37′ being subtracted from 25° 58′, the remainder is 18° 21′ for the lesser angle CAB. Lastly, knowing the angles, and two sides, the third side may be found by the first proposition.

Prop. IV. *Having the three sides; to find any angle.*

Add the three sides together, and take half the sum, and the differences betwixt the half-sum and each side: then add the complements of the logarithms of the half-sum, and of the difference between the half-sum and the side opposite to the angle sought, to the logarithms of the differences of the half-sum, and the other sides, half their sum will be the tangent of half the angle required.

Example. In the triangle ABC, having the side AB 562, AC 800, and BC 320; to find the angle ABC.

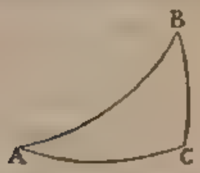
AC = 800	H=841	- co. 7·0752040
AB = 562	H−AC=41	co· 8·3872161
BC = 320	H−AB=279	- 2·4456042
sum 1682	H−BC=521	- 2·7168377
½ sum 841=H	sum	20·6248620

Tang. of 64°2′=½ sum 10·3124310
Whose double 128° 4′ is the angle ABC.

THE CASES OF SPHERICAL TRIANGLES RESOLVED BY LOGARITHMS.

THE resolution of spherical triangles is to be performed by the table of sines, tangents, and secants; which we shall show by the 28 propositions following; whereof 16 are of right-angled, and 12 are of oblique triangles; and first

Of right-angled Triangles.



Prop. I. *Having the legs; to find the hypotenuse.*

Add the cosine of one leg, to the cosine of the other leg; the sum (abating radius) is the cosine of the hypotenuse required.

Example. In the right-angled triangle ABC, having AC 27° 54′, and BC 11° 30′; to find AB the hypotenuse.

9·9911927	cosin.	11° 30′
9·9463371	cosin.	27 54
9·9375298	cosin.	30 AB req.

Prop. II. *Having the two legs; to find either of the angles.*

Add the sine of the leg next the angle sought, to the cotangent of the other leg: the sum (abating radius) is the cotangent of the angle required.

Example. In the right-angled triangle ABC, having AC 27° 54′, and BC 11° 30′; to find the angle BAC.

9·6701807	sin. next leg	27° 54′
10·6915374	cot. opp. leg	11 30
10·3617181	cotan. BAC	23 30

Prop. III. *Having the hypotenuse, and one of the angles; to find the other angle.*

Add the cosine of the hypotenuse to the tangent of the angle given; the sum (abating radius) is the cotangent of the angle required.

Example. In the right-angled triangle ABC, having the hypotenuse AB 30°, and the angle ABC 69° 22′; to find the angle BAC.

9·9375306	cosin. hyp. AB	30° 00′
10·4241896	tang. ABC -	69 22
10·3617202	cotan. BAC -	23 30

Prop. IV. *Having the hypotenuse, and one of the angles; to find the leg next the given angle.*

Add the tangent of the hypotenuse to the cosine of the angle given; the sum (abating radius) is the tangent of the leg required.

Example. In the right-angled triangle ABC, having the hypotenuse AB 30°, and the angle ABC 69° 22′; to find the leg BC.

9·7614393	tang. hyp. AB	30° 00′
9·5470188	cosin. ABC -	69 22
9·3084581	tang. BC - -	11 30

Prop. V. *Having the hypotenuse, and one of the angles; to find the leg opposed to the given angle.*

Add the sine of the hypotenuse to the sine of the angle given; the sum (abating radius) is the sine of the leg required.

Example. In the right-angled triangle ABC, having the hypotenuse AB 30°, and the angle BAC 23° 30′; to find the leg BC.

9·6989700	sin. hyp. AB	30° 00′
9·6006997	sin. BAC -	23 30
9·2996697	sin. BC -	11 30

Prop. VI. *Having one of the legs and the angle next it; to find the hypotenuse.*

Add the cotangent of the given leg, to the cosine of the given angle; the sum (abating radius) is the cotangent of the hypotenuse required.

Example. In the right-angled triangle ABC, having the leg AC 27° 54′, and the angle BAC 23° 30′; to find the hypotenuse AB.

10·2761563	cot. AC	-	27°	54′
9·9623977	cos. BAC	-	23	30
10·2385540	cot. hyp. AB		30	00

Prop. VII. *Having one of the legs, and the angle next it; to find the other leg.*

Add the sine of the leg given to the tangent of the angle given; the sum (abating radius) is the tangent of the leg required.

Example. In the right-angled triangle ABC, having the leg AC 27° 54′, and the angle BAC 23° 30′; to find the leg BC.

9·6701807	sin. AC	27°	54′
9·6383019	tan. BAC	23	30
9·3084826	tan. BC	11	30

Prop. VIII. *Having one of the legs, and the angle next to it; to find the other angle.*

Add the cosine of the given leg to the sine of the given angle; the sum (abating radius) is the cosine of the angle required.

Example. In the right-angled triangle ABC, having the leg BC 11° 30′, and the angle ABC 69° 22′; to find the angle BAC.

9·9911927	cos. BC	11°	30′
9·9712084	sin. ABC	69	22
9·9624011	cos. BAC	23	30

Prop. IX. *Having one of the legs, and the angle opposed unto it; to find the hypotenuse.*

Add the radius to the sine of the given leg, and from the sum subtract the sine of the given angle, or add its cosecant; the remainder or sum is the sine of the hypotenuse required.

Example. In the right-angled triangle ABC, having the leg BC 11° 30′, and the angle BAC 23° 30′; to find the hypotenuse AB.

9·2996553	sin. BC	11°	30′
0·3993003	cos. BAC	23	30
9·6989556	sin. AB	30 reqd.	

Prop. X. *Having one of the legs, and the angle opposed unto it; to find the other leg.*

Add the tangent of the given leg, to the cotangent of the given angle; the sum (abating radius) is the sine of the leg required.

Example. In the right-angled triangle ABC, having the leg BC 11° 30′, and the angle BAC 23° 30′; to find the leg AC.

9·3084626	tang. BC	11°	30′
10·3616981	cot. BAC	23	30
9·6701607	sin. AC	27	54

Prop. XI. *Having one of the legs, and the angle opposed unto it; to find the other angle.*

Add the radius to the cosine of the given angle, and from the sum subtract the cosine of the given leg, or add the secant; the remainder or sum is the sine of the angle required.

Example. In the right-angled triangle ABC, having the leg BC 11° 30′, and the angle BAC 23° 30′; to find the angle ABC.

9·9623977	cos. BAC	23°	30′
0·0088073	sec. BC	11	30
9·9712050	sin. ABC	69	22

Prop. XII. *Having one of the legs, and the hypotenuse; to find the angle next the given leg.*

Add the tangent of the given leg, to the cotangent of the hypotenuse, the sum (abating radius) is the cosine of the angle required.

Example. In the right-angled triangle ABC, having the leg AC 27° 54′, and the hypotenuse AB 30°; to find the angle BAC.

9·7238436 tan. AC 27° 54′
10·2385606 cot. AB 30 00
9·9624042 cosi. BAC 23 30

Prop. XIII. *Having one of the legs, and the hypotenuse; to find the angle opposed to the given leg.*

Add the radius to the sine of the given leg, and from the sum subtract the sine of the hypotenuse, or add its cosecant; the remainder or sum will be the sine of the angle required.

Example. In the right-angled triangle ABC, having the leg BC 11° 30′, and the hypotenuse AB 30°; to find the angle BAC.

9·2996553 sin. leg BC 11° 30′
0·3010300 cosec. hyp. AB 30 00
9·6006853 sine of BAC 23 30

Prop. XIV. *Having one of the legs, and the hypotenuse; to find the other leg.*

Add the radius to the cosine of the hypotenuse, and from the sum subtract the cosine of the given leg, or add its secant; the remainder or sum is the cosine of the leg required.

Example. In the right-angled triangle ABC, having the leg BC 11° 30′, and the hypotenuse AB 30°; to find the leg AC.

9·9375306 cosin. AB 30° 00′
0·0088073 sec. BC 11 30
9·9463379 cosin. AC 27 54

Prop. XV. *Having the angles; to find the hypotenuse.*

Add the cotangent of one oblique angle to the cotangent of the other oblique angle; the sum (abating radius) is the cosine of the hypotenuse required.

Example. In the right-angled triangle ABC, having the angle BAC 23° 30′, and the angle ABC 69° 22′; to find the hypotenuse AB.

0·3616981 cot. BAC 23° 30′
9·5758104 cot. ABC 69 22
9·9375085 cos. hyp. AB 30 00

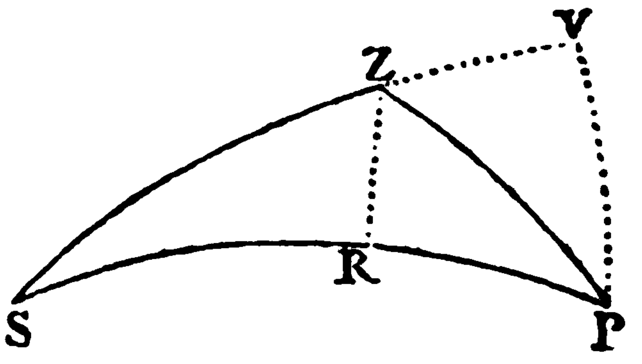
Prop. XVI. *Having the angles; to find either of the legs.*

Add the radius to the cosine of either oblique angle; and from the sum subtract the sine of the other oblique angle, or add its cosecant; the remainder or sum will be the cosine of the leg opposite to the angle whose cosine was taken.

Example. In the right-angled triangle ABC, having the angle BAC 23° 30′, and the angle ABC 69° 22′; to find the leg BC.

9·9623977 cosin. BAC 23° 30′
0·0287916 cosec. ABC 69 22
9·9911893 cosin. BC 11 30

Of Oblique Triangles.



Prop. XVII. *Having the three sides, to find any of the angles.*

Add the three sides together, and take half the sum; also the difference between the half-sum and the side opposite to the angle sought. Then add the cosecants, or the complements of the sines, of the other sides, to the sines of the half-sum and of the said difference; half the sum of these four logarithms is the cosine of half the angle required.

Example. In the triangle SZP, having the side ZS 40°, PS 70°, and PZ 38° 30′; to find the angle ZPS.

PS = 70° 0′	cosec.	0·0270142
PZ = 38 30	cosec.	0·2058505
ZS = 40 0	sin. ½ sum	9·9833805
Sum 148 30	sin. dif.	9·7503579
½ sum 74 15	2)	19·9666031
ZS = 40 0	cos. 15° 47′	9·9833015
Diff. 34 15	ZPS 31 34	required.

Prop. XVIII. *Having the three angles; to find any of the sides.*

Let the angles be changed into sides, taking the supplement of one of them; then the operation will be the same as in the former proposition.

Prop. XIX. *Having two angles, and a side opposed to one of them; to find the side opposed to the other angle.*

Add the sine of the side given to the sine of the angle opposite to the side required, and from the sum subtract the sine of the angle opposite to the side given, or add its cosecant; the remainder or sum will be the sine of the side required.

Example. In the triangle SZP, having the angle SZP 130° 3′ 12″, SPZ 31° 34′ 26″, and the side ZS 40°; to find the side PS.

9·8080675	sin. ZS	40° 0′ 0″
9·8838294	sin. SZP	49 56 .
850		. . 48
0·2808858	cos. SPZ	31 35 .
1165		. . —34
9·9729842	sin. PS reqd.	70 0 0

See pa. 171 following.

Prop. XX. *Having two angles, and a side opposed to one of them; to find the side between the angles given.*

Let a perpendicular fall from the angle unknown, on its opposite side: then add the cosine of the given angle next the given side, to the tangent of the given side; the sum (abating radius) is the tangent of the first arc, comprehended between the given angle next the given side, and the segment of the side where the perpendicular falls.

And the second arc, comprehended between the same segment and the other angle, is to be found thus: add the sine of the arc found, to the tangent of the given angle next the given side, and from the sum subtract the tangent of the other angle given, or add its cotangent; the remainder or sum will be the sine of the second arc.

The sum or difference of these two arcs will be the side required.

Example. In the triangle SZP, having the angle ZPS 31° 34′ 26″, ZSP 30° 28′ 12″, and the side PZ 38° 30′; to find the side SP.

9·9303781	cos. ZPS	31° 35′ ."
440		. —34
9·9006052	tan. PZ	38 30 0
9·8310273	tan. PR 1st arc	34 7 30
9·7488698	sin. PR	34 7
932		. . 30
9·7884529	tan. ZPS	31 34 .
1227		. 26
0·2301404	cot. ZSP	30 29 .
2313		. —48
9·7679103	sin. SR 2d arc	35 52 30
	add PR 1st arc	34 7 30
	sum is SP	70 0 0

See page 171 following.

But when the perpendicular falls out of the triangle, the difference of the two arcs will be the side required.

Prop. XXI. *Having two angles, and a side opposite to one of them; to find the third angle.*

Let a perpendicular fall from the angle unknown, on its opposite side; then add the cosine of the given side to the tangent of the adjacent angle; the sum (abating radius) is the cotangent of the first angle to be found, comprehended by the given side and the perpendicular.

And the second angle, comprehended by the perpendicular and the side unknown, is to be found thus: add the sine of the angle found, to the cosine of the given angle opposite to the

given side, and from the sum subtract the cosine of the other angle given, or add its secant; the remainder or sum will be the sine of the second angle.

The sum or difference of these two angles will be the angle required.

Example. In the triangle SZP, having the angle ZPS 31° 34′ 26″, ZSP 30° 29′ 12″, and the side PZ 38° 30′; to find the angle SZP.

9·8935444	cosin. PZ	38° 30′ 0″
9·7884529 / 1227	tang. ZPS	31 34 · / · · 26
9·6821200	cot. 1st ∠ PZR	64 18 50

9·9547610 / 507	sin. PZR	64 18 · / · · 50
9·9353148 / 594	cos. ZSP	30 29 · / — 48
0·0695415 / 350	sec. ZPS	31 34 · / · · 26
9·9598417	sin. 2d ∠ SZR	65 44 21
	then add 1st ∠ PZR	64 18 50
	the sum is SZP	130 3 11

See page 171 following.

But when the perpendicular falls out of the triangle, the difference of the two angles will be the angle required.

Prop. XXII. *Having two sides, and the angle between them; to find either of the other angles.*

Let a perpendicular fall from the unknown angle, which is not required, on its opposite side: then add the cosine of the given angle to the tangent of the given side opposite to the angle required; the sum (abating radius) is the tangent of the first arc, comprehended between the given angle and the segment of the given side where the perpendicular falls.

And the second arc is the difference of that side and the first arc, being comprehended between the same segment and the angle required.

Now add the sine of the first arc, to the tangent of the given angle, and from the sum subtract the sine of the second arc, or add its cosecant; the remainder or sum will be the tangent of the angle required.

Example. In the triangle SZP, having the side PZ 38° 30′, PS 70°, and the angle ZPS 31° 34′ 26″; to find the angle ZSP.

9·9303781 / 440	cosin. ZPS	31° 34′ · / · · 26
9·9006052	tang PZ	38 30 0
9·8310273	tan. PR, 1st arc	34 7 30
	taken from PS	70 0 0
	leaves SR, 2d arc	35 52 30

9·7488698 / 032	sin. PR	34 7 . / . . 30
9·7884529 / 1227	tang. ZPS	31 34 . / . . 26
0·2320011 / 873	cosec. SR	35 53 . / . —30
9·7096270	tan. ZPS req.	30 28 12

See page 171 following.

To find both the unknown angles.

Add together the cosecant, or the complement of the sine, of half the sum of the given sides, the sine of half their difference, and the cotangent of half the angle given; the sum (abating radius) is the tangent of half the difference of the angles required.

Add also together the secant, or the complement of the cosine, of half the sum of the given sides, the cosine of half their difference, and the cotangent of half the angle given; the sum (abating radius) is the tangent of half the sum of the angles required.

Then add the half-difference of the angles required, to their half-sum, and you will have the greater angle; and subtract the half-difference from the half-sum, and you will have the lesser angle required, the same as in the former operation.

PS =	70°	0'	
PZ =	38	30	
Sum	108	30	
Diff.	31	30	
½ Sum	54	15	
½ Diff.	15	45	
∠ ZPS =	31	34	26"
½∠ ZPS =	15	47	13

Cosec. ½ sum	0·0906719	Sec. ½ sum	0·2334015
Sin. ½ diff.	9·4336746	Cosin. ½ diff.	9·9833805
Cot. ½ ZPS	10·5486352	Cot. ½ ZPS	10·5486352
T.49°47'30"	10·0729817	T.80°15'42"	10·7654172

Half sum of angles required is . . .	80°	15'	42"
Half the difference is	49	47	30
The greater angle SZP is . . .	130	3	12
The lesser angle ZSP is, as before,	30	28	12

Prop. XXIII. *Having two sides, and the angle between them; to find the third side.*

Let a perpendicular fall from either of the angles unknown, on its opposite side: then add the cosine of the given angle, to the tangent of the side from whose end the perpendicular is let fall; the sum (abating radius) is the tangent of the first arc, comprehended between the given angle and the segment of the side where the perpendicular falls.

And the second arc is the difference of that side and the first arc, being comprehended between the same segment and the end of the side required.

Now add the cosine of the second arc, to the cosine of the side from whose end the perpendicular falls, and from the sum subtract the cosine of the first arc found, or add its secant; the remainder or sum will be the cosine of the side required.

Example. In the triangle SZP, having the side PZ 38° 30', PS 70°, and the angle ZPS 31° 34' 26"; to find the side ZS.

9·9303781 } 440 }	cosin. ZPS	{ 31° .	35' .	." —34
9·9006052	tang. PZ .	38	30	0
9·8310273	tan.PR, 1st arc	34	7	30
	taken from PS	70	0	0
	leaves SR, 2d arc	35	52	30
9·9085988 } 457 }	cosin. SR	{ 35 .	53 .	. —30
9·8935444	cosin. PZ	38	30	0
0·0820236 } 428 }	sec. PR	{ 34 .	7 .	. 30
1·8842553	cosin. ZS req.	40	0	0

See page 171 following.

Prop. XXIV. *Having two sides, and the angle opposite to one of them; to find the angle opposed to the other side.*

Add the sine of the angle given, to the sine of the side opposite to the angle required, and from the sum subtract the sine of the side opposite to the angle given, or add its cosecant; the remainder or sum will be the sine of the angle required.

Example. In the triangle SZP, having the side PS 70°, ZS 40°, and the angle SZP 130° 3' 12"; to find the angle ZPS.

9·8838294 } 850 }	sin.sup.SZP	{ 49° .	56' .	." 48
9·8080675	sin. ZS	40	0	0
0·0270142	cosec. PS .	70	0	0
9·7189961	sin. ZPS req.	31	34	26

See page 171 following.

Prop. XXV. *Having two sides, and the angle opposite to one of them; to find the third side.*

Let a perpendicular fall from the angle between the sides given, on its opposite side: then add the cosine of the angle given, to the tangent of the given side next that angle; the sum (abating radius) is the tangent of the first arc, comprehended between the given angle and the segment of the side where the perpendicular falls.

Now the 2d arc, comprehended between the same segment, and the end of the side required, is to be found thus: add the cosine of the first arc, to the cosine of the given side opposide to the angle given, and from the

sum subtract the cosine of the other given side, or add its secant; the remainder or sum will be the cosine of the second arc.

The sum or difference of these two arcs will be the side required.

Example. In the triangle SZP, having the side PZ 38° 30′, SZ 40°, and the angle SPZ 31° 34′ 26″; to find the side PS.

9·9303781	cos. SPZ	31°	35′	″
440		.	.	−34
9·9006052	tan. PZ	38	30	0
9·8310273	tang. PR 1st arc	34	7	30
9·9178908	cosin. PR	34	8	″
428		.	.	−30
9·8842540	cosin. SZ .	40	0	0
0·1064556	sec. PZ .	38	30	0
9·9086432	cosin. SR 2d arc	35	52	30
	add PR, 1st arc	34	7	30
	gives PS req.	70	0	0

See page 171 following.

But when the perpendicular falls out of the triangle, the difference of the two arcs will be the side required.

Prop. XXVI. *Having two sides, and the angle opposed to one of them; to find the angle between them.*

Let a perpendicular fall from the angle between the sides given, on its opposite side: then add the cosine of the given side next the given angle, to the tangent of that angle; the sum (abating radius) is the cotangent of the first angle to be found, comprehended by the given side next the angle given, and by the perpendicular.

Now the second angle, comprehended by the perpendicular and the other given side, is to be found thus: add the cosine of the first angle found, to the tangent of the given side next the angle given, and from the sum subtract the tangent of the other given side, or add its cotangent; the remainder or sum will be the cosine of the second angle to be found.

The sum or the difference of the first and second angles, will be the angle required.

Example. In the triangle SZP, having the side PZ 38° 30′, SZ 40°, and the angle SPZ 31° 34′ 26″; to find the angle SZP.

9·8935444	cosin. PZ	38°	30′	0″
9·7884529	tang. SZP	31	34	.
1227		.	.	26
9·6821200	cotan. PZR, 1st ∠	64	18	50
9·6368859	cosin. PZR	64	19	″
437		.	.	−10
9·9006052	tang. PZ .	38	30	0
0·0761865	cotan. SZ .	40	0	0
9·6137213	cosin. SZR, 2d ∠	65	44	22
	add PZR, 1st ∠	64	18	50
	gives SZP, req.	130	3	12

See page 171 following.

Prop. XXVII. *Having two angles, and the side between them; to find either of the other sides.*

Let a perpendicular fall from the given angle, which is next the side required, upon its opposite side: then add the cosine of the given side to the tangent of the given angle opposite to the side required; the sum (abating radius) is the cotangent of the first angle to be found, comprehended by the given side and the perpendicular.

And the second angle is the difference between the first and the given angle next the required side, being comprehended by the perpendicular and that side.

Now add the cosine of the first angle found, to the tangent of the side given, and from the sum subtract the cosine of the second angle, or add its secant; the remainder or sum will be the tangent of the side required.

Example. In the triangle SZP, having the angle SPZ 31° 34′ 26″, SZP 130° 3′ 12″, and the side PZ 38° 30′; to find the side SZ.

9·8935444	cosin. PZ -	38°	30′	0″
9·7884529 }	tang. SPZ {	31	34	.
1227 }	{		.	26
9·6821200	cot. PZR, 1st ∠,	64	18	50
	taken from SZP	130	3	12
	leaves SZR, 2d ∠,	65	44	22
9·6368859 }	cosin. PZR {	64	19	.
437 }	{	.	.	—10
9·9006052	tang. PZ -	38	30	0
0·3861750 }	sec. SZR {	65	44	.
1028 }	{	.	.	22
9·9238126	tan. SZ req.	40	0	0

See page 171 following.

To find both the unknown sides.

Add together the cosecant, or the complement of the sine, of half the sum of the angles given, the sine of half their difference, and the tangent of half the given side; the sum (abating radius) is the tangent of half the difference of the sides required.

Add also together the secant, or the complement of the cosine, of half the sum of the given angles, the cosine of half their difference, and the tangent of half the given side; the sum (abating radius) is the tangent of half the sum of the sides required.

Then add half the difference of the sides required, to their half-sum, and you will have the greater side; and subtract the half-difference from the half-sum, and you will have the lesser side required, the same as in the former operation.

SZP	130°	3′	12″	Cosec. ½ sum	0·0056062	Sec. ½ sum	0·7968360
SPZ	31	34	26	Sin. ½ diff.	9·8793527	Cosin. ½ diff.	9·8148437
Sum	161	37	38	Tang. ½ PZ	9·5430936	Tang. ½ PZ	9·5430936
Diff.	98	28	46	Tang. of 15°	9·4280525	Tang. of 55°	10·1547733
½ Sum	80	48	49	Half sum of the sides required is - - -			55°
½ Diff.	49	14	23	Half their difference is - - - - - - -			15
PZ	38	30	0	The greater side SP is - - - - - - -			70
½ PZ	19	15	0	Lesser side SZ is, as before - - - - - -			40

Prop. XXVIII. *Having two angles and the side between them; to find the third angle.*

Let a perpendicular fall from either of the angles given, upon its opposite side: then add the cosine of the side given to the tangent of the given angle, from which the perpendicular does not fall; the sum (abating radius) is the cotangent of the first angle, comprehended by the given side and the perpendicular.

And the second angle is the difference between the first and the given angle that the perpendicular fell from, being comprehended by the perpendicular and the side opposite to the other angle given.

Now add the sine of the second angle to the cosine of that given angle from which the perpendicular did not fall, and from the sum subtract the sine of the first angle found, or add its cosecant; the remainder or sum will be the cosine of the angle required.

Example. In the triangle SZP, having the angle SZP 130° 3′ 12″, SPZ 31° 34′ 26″, and the side PZ 38° 30′; to find the angle PSZ.

9·8935444	cosin. PZ -	38	30	0
9·7884529 }	tang. SPZ {	31	34	.
1227 }	{	.	.	26
9·6821200	cotan. PZR, 1st ∠,	64	18	50
	taken from SZP	130	3	12
	leaves SZR, 2d ∠,	65	44	22
0·0451773 }	cosec. PZR {	64	19	.
101 }	{	.	.	—10
9·9303781 }	cosin. SPZ {	31	35	.
440 }	{	.	.	—34
9·9598246 }	sin. SZR {	65	44	.
209 }	{	.	.	22
9·9354550	cosin. PSZ req.	30	28	0

See page 171 following.

FOR THE USE OF THE VERSED SINES MAY BE ALSO ADDED THE FOLLOWING PROPOSITIONS.

Prop. I. *Having two sides of a spheric triangle, with the angle between them; to find the third side.*

ADD together the log. versed sine of the contained angle, and the log. sines of the two sides; the sum (abating twice the radius) is the logarithm of a number to be found, which added to the natural versed sine of the difference of the two given sides, the sum will be the natural versed sine of the third side sought.

Or when the contained angle is above 90°, add the log. versed sine of its supplement, and the log. sines of the two sides together; the sum (abating twice the radius) is the logarithm of a number to be found, and subtracted from the natural versed sine of the sum of the two given sides, the remainder will be the natural versed sine of the third side sought.

Example 1. In the triangle SZP, having the side PZ 38° 30′, PS 70°, and the angle ZPS 31° 34′ 26″; to find the side ZS.

9·1703625	log. ver. sine ZSP	31° 34′ 26″
9·7941496	log. sine of PZ	38 30 0
9·9729858	log. sine of PS	70 0 0
8·9374979	log. of the numb.	865960
Nat. vers. diff. sides	31° 30′	1473598
Nat. vers. ZS 40°	- - -	2339558

Example 2. In the triangle SZP, having the side PZ 38° 30′, ZS 40°, and the angle SZP 130° 3′ 12″; to find the side PS.

The angle VZP is the supplement of SZP.

9·5520590	log. vers. VZP	49° 56′ 48″
9·7941496	log. sin. PZ	38 · 30 0
9·8080675	log. sin. ZS	40 0 0
9·1542761	log. of the number	1426514
Nat. vers. sum sides	78° 30′	8006321
Nat. vers. PS 70°	- - -	6579807

This proposition may be very useful in finding the distances of places on the earth, whose longitudes and latitudes are known; the distances of stars, whose declinations and right ascensions, or longitudes and latitudes, are known; and consequently the altitudes, or common altitude of two stars, or two altitudes of the sun, and time between the observations, or difference of azimuth, being taken, the latitude of the place may readily be found.

Prop, II. *Having two angles of a spheric triangle, and the side between them; to find the third angle.*

Let the angles be changed into sides, and the side into an angle; then proceed as in the former proposition, and the result will be the supplement of the third angle. But if one of the given angles exceed 90°, take its supplement, and the result will be the third angle.

The following remarks and directions, for rendering the proportional part of a logarithm always additive, and for using *c* + *t*, *c*—*t*, &c, for *s* or *c* &c, in the foregoing propositions, 20, 21, 22, 23, 25, 26, 27, 28, were communicated by the Rev. Nevil Maskelyne, D. D. astronomer royal, and F. R. S. the fourth case having been invented by him many years since, and delivered to the computors of the Nautical Ephemeris, as precepts necessary in computing the moon's distance from the stars in some cases, and the rest he has now added on this occasion.

" The result of trigonometrical calculations will be sometimes inaccurate, owing to the logarithms not being carried to a greater number of places in the table, as will sufficiently appear from the logarithmic differences being small. This will happen where the answer comes out in the cosine of a very small angle, or the sine of an angle near 90°. The greatness of the differences of the log. sines of small arcs, or cosines of large ones, will sometimes affect the accuracy of the result of the second part of the operation, unless the first arc be found to a small part of a minute or second: To prevent such error, and render the computation easier, putting t, t', s, c for the tangent, cotangent, sine, and cosine of the 1st arc or angle, then in the 2d part of the work,

In Prop. 20,	if the first arc	is very small,	for	s	use	c + t
21	- - - angle	is very small,	for	s	use	c — t'
22	- - - arc	is very small,	for	s	use	c + t
23	- - - arc	is near 90°,	for—	c	use	t — s
25	- - - arc	is near 90°,	for	c	use	s — t
26	- - - angle	is near 90°,	for	c	use	s + t'
27	- - - angle	is near 90°,	for	c	use	s + t'
28	- - - angle	is very small,	for—	s	use	t' — c

This obviates the necessity of finding the first arc to a very minute exactness, which otherwise would be necessary in taking out the sine or cosine of the same arc in the second part of the work.

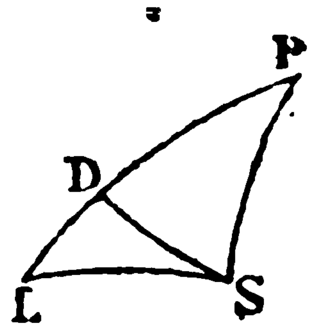
Where the foregoing precepts direct to subtract a sine or cosine, it will be readier in practice to add a cosecant or secant; and where they direct to subtract a tangent (which is done in prop. 26) it will be readier to add a cotangent. This method being used, if it be required to find the logarithmic sines, &c, to the exactness of a second, and the logarithm is increasing (as in the sines, tangents, and secants), write down the logarithm for the degree and minute without the seconds; and also write down the proportional part for the seconds; but, if the logarithm is decreasing (as in the cosines, cotangents, and cosecants) write down the logarithm for the next greater minute, and also write down the proportional part for the complement of the seconds to 60; and proceed in like manner

with every logarithmic sine, cosine, &c, used in the work; the sum of all the logarithms (abating one or two radii or tens in the index, according as 2 or 3 logarithmic sines, &c are used in the part of the work in question) will be the logarithmic sine, cosine, tangent, or co-tangent required.

Ex. 1. To find the log. sine of	34° 17′ 24″
Here log. sine of 34° 17′ - -	9·7507287
And as 60 : 24 or as 10 : 4 : : 1853 : -	741
	9·7508028
Ex. 2. To find the log. cos. of	55° 42′ 36″
Log. cos. of 55° 43′ - - -	9·7507287
60 : 24 (60—36), or 10 : 4 : : 1853 : -	741
	9·7508028

Ex. 3. In the triangle PLS, given

P = 20° 30′ 48″ PS = 85 3 40 PL = 89 10 0	to find LS by prop. 23; SD being perp. PL.



P	20° 31′ .″	cos.	- 9·9715404		
	. .—12		- - - - - - 95		
PS	85 3 .	tan.	11·0624350	cos. found by taking tang. from sine	8·9349686
	. . 40		- - - - - - 9814		
PD	84 43 43	tan.	11·0349663	- - - - - - -	11·0349663
PL	89 10 0			cosec. PD, 84° 44′ .″ -	10·0018374
LD	4 26 17			— 17 -	33
				cosin. LD 4 27 . -	9·9986888
				— 43 -	70
				cosin. LS 20 53 24 -	9·9704714

Here to avoid the trouble of finding the proportional part for the large logarithm difference of the cosine of PS, that cosine is found by subtracting the tangent of it (already found) from the sine, which is easily found, because the differences are small: And, for the same reason, the sum of the tangent and cosecant of PD, are used instead of its secant.

N. B. The perpendicular should always be let fall from the end of the side, PS or PL, which differs most from 90°, over or under."

OF THE TRAVERSE TABLE.

THIS traverse table, or table of difference of latitude and departure, in page 338 and 339, is so contrived, as to have the whole in one view, and is so plainly titled as to want little or no explanation.

The distances 1, 2, 3, &c, at the top and bottom, may be accounted 10, 20, 30, &c, and the 10 as 100, if the minutes of latitude and departure answering to the course be increased in the same proportion; so that if the distance consists of two significant figures, the difference of latitude, and the departure, is each to be taken out at twice; and if of three figures, at thrice.

The chief design of this table, is for the ready and exact working of traverses; but it may also be applied to the solution of the several cases of plain sailing, and to some other uses.

Prop. I. *Having the course and distance, to find the difference of latitude and departure.*

Seek the course on the left hand of both pages downwards, if less than four points, or 45 degrees; or if greater, on the right hand upwards; and even with it in the double column, signed at the top and bottom with the distance, is found both the difference of latitude and the departure.

Example 1. A ship sails SSW ¾ W 37 miles; the difference of latitude and the departure are required.

Find the course 2¾ points on the left-hand side of each page, and even with it in the double columns signed 3, and 7, the two figures of the distance, the difference of latitude for 30 is 25·732, and for 7 is 6·004, the sum is 31·736 for the whole difference of latitude; and the departure for 30 is 15·423, and for 7 is 3·599, the sum is 19·022 for the whole departure.

Thus, *Dist.*	*Diff. Lat.*	*Dep.*
30 - -	25·732 -	15·423
7 - -	6·004 -	3·599
37 miles	31·736 -	19·022

Example 2. A ship sails SE 49° 148 miles; the difference of latitude and the departure are required.

Find the course 49 degrees on the right-hand side of each page, and even with it in the double columns signed 10, 4, and 8, the difference of latitude at 100 miles is 65·606, at 40 is 26.242. and at 8 is 5·248; the sum is 97·096 for the whole difference of latitude. And the departure at 100 miles is 75·471, at 40 is 30·188, and at 8 is 6·038; the sum is 111·697 for the whole departure. Thus,

Dist.	*Diff. Lat.*	*Depart.*
100 - - -	65.606 -	75·471
40 - - -	26·242 -	30·188
8 - - -	5·248 -	6·038
148 miles	97·096 -	111·697

Prop. II. *Having several courses and distances; to find the difference of latitude and the departure.*

Make a table in the following manner, and put therein each course and distance; then find the difference of latitude and departure to each course by the preceding, and place them in the proper column; the difference of the sums of the northings and southings, is the whole difference of latitude; and the difference of the sums of the eastings and westings, is the whole departure.

Example. A ship from the latitude of 50° north, sails according to the courses and distances set in the traverse table; the differences of latitude, and the departure, are found at the bottom.

THE TRAVERSE TABLE.

Course.	Dist. Miles.	Diff. of Lat. North.	Diff. of Lat. South.	Departure. East.	Departure. West.
SSE ½ E	79		69·671	37·241	
SE ¼ E	86		54·537	66·479	
SbW ¼ W	109		101·687		36·384
S 45° W	112		74·943		80·221
N 58° W	70	6·101			69·734
S 40° W	81		64·848		53·994
		6·101	365·905	103·720	243·343
			6·101		103·720
		Dif. la.	359·104	Depart.	139·623

This proposition may be applied in the surveying of large tracts of land, as a county, &c. and was made use of by Mr. Norwood in measuring the distance from York to London, as the road led him, observing the several bearings by his circumferentor, and finding by such a table his several differences of latitude, and departure, by which he obtained the distance between the parallels of London and York, pretty near the truth, so long ago as the year 1635; as may be seen in his Seaman's Practice.

Also in plotting the survey of a county thus taken, the circuit station-lines, though consisting of many hundreds, may be reduced to a few for the first closing, and the like for the intermediates of each line first plotted, by which every station may perhaps be more truly placed than by any other method: the distances in the table may be chains of 66, or 100 feet, as well as miles, or any other measure that the differences of latitude and departure would be had in.

Prop. III. *Having the difference of latitude, and the departure; to find the course and distance.*

Seek the given difference of latitude and departure, taken together, in their columns, or the nearest numbers to them; and the course is even therewith at the side, and the distance at the top and bottom: but if the given difference of latitude and departure cannot be found nearly, take ½, ⅓, &c. part, or any equal multiple of them that can be found; then the course is even with them at the side, and such a part of the distance, as was taken of the difference of latitude and departure, at the top and bottom.

Example 1. Given the difference of latitude 59 miles s, and the departure 68 miles w; the course and distance are required.

In the double column over 9, even with 49° at the right-hand side, is found together the given difference of latitude and departure; therefore the course is 49° sw, and the distance 90 miles.

Example 2. Given the difference of latitude 30 miles N, and the departure 18 miles E; the course and distance are required.

Here the given difference of latitude and departure, or any numbers near them, are not to be found together in the table; therefore taking ½ or the double of each, the course is found to be 31° N E, and the distance 35 miles.

Note. A table computed to every mile in the distance up to 100 miles would more readily solve this example.

Prop. IV. *Having the departure and middle latitude; to find the difference of longitude, according to the method used by* W. Jones, Esq. F. R. S.

Seek the given departure, or the next less number in the columns signed lat. even with the middle given latitude found among the courses, and at the top and bottom (signed dist.) is the difference of longitude sought; which, if not found directly at once, may be taken out at twice or thrice.

Example 1. Being yesterday noon in the latitude of 37° 17′ N, and this day noon in 38° 43′ N, and by the table the departure is found 70·921 E; the difference of longitude is required.

In the column signed lat. under 9, even with 38°, the middle latitude is found 7·0921; therefore 90 miles is the difference of longitude sought.

Example 2. Being yesterday noon in latitude 46° 25′ N, and this day noon in 47° 35′ N, so that the middle latitude is 47° N, and the departure is found 112·53 miles w; required the difference of longitude.

In the column signed lat. over at the bottom, even with 47 at

right-hand side, is 6·8200; therefore subducting 68·200 from 112·53, the remainder is 44·33; then over 6 is 4·0920, and 40·92 subducted from 44·33 leaves 3·41, which is found over 5; therefore the difference of longitude is 165 miles west.

If the middle latitude be not an even degree, but have odd minutes; find the difference of longitude, for the even degrees next less and greater, and add a proportional part of the difference between the two results to the lesser; the sum will be the difference of longitude sought.

Suppose the middle latitude in the last example had been 47_0 20′ N, then, after finding the difference of longitude as before for 47°, find it also for 48°, which is 168 miles; then ⅓ of the difference being added to the former, gives the difference of longitude 166 miles west.

Note. Though this method is not in all cases near the truth, yet when the miles are geographical, it is sufficiently near for daily practice in any voyage, as well as easy, and very expeditious.

Prop. V. *Having the latitudes and the longitudes of two places, to find the bearing and distance.*

Seek the complement of the middle latitude among the degrees, and the difference of longitude in minutes among the distances, the departure answering is found in its proper column; then with the difference of latitude and departure, find their bearing or course and distance by the third.

Example. Let the Lizard be given in the latitude of 49_0 50′ N, and 5° 21′ W longitude, and Cape Ortegal in the latitude of 44° 10′ N, and 70° 43′ W longitude; to find the bearing and distance.

The difference of longitude is 142′; and in the columns signed dep. under 10, 4, and 2, even with 43° the co-middle latitude, are found 6·8200, 2·7280, and 1·3640; then increasing the two former as before shown, their sum is 96·844 miles W, for the departure; and the bearing, or course, answering to 340 miles difference of latitude, with 96·844 departure, is found about 16° SW: and the distance about 354 miles.

OF MERCATOR'S SAILING.

THE uses of the table of meridional parts are fully supplied by the table of logarithmic tangents, as is demonstrated in N° 219 of the Philosophical Transactions. It is there proved, 1st, That the meridional line, or scale of Mercator's Chart, is a scale of the log. tangents of the half-complements of the latitude. 2dly, That such log. tangents of Mr. Briggs's form, are a scale of the differences of longitude, on the rumb which makes an angle of 51° 38′ 9″ with the meridian. And 3dly, That the differences of longitude on different rumbs, are to one another as the tangents of the angles of those rumbs with the meridian.

Hence it follows, that the difference of the log. tangents of the half complements of the latitudes, is to the difference of longitude a ship makes in sailing on any rumb from the one latitude to the other, as the tangent of 51° 38′ 9″ (whose logarithm is 10·1015104) to the tangent of the angle of the rumb or course with the meridian; so that:

I. If two latitudes, and the difference of longitude, be given, the course and distance are readily determined by this rule.

Take, by help of the tables, the difference of the log. tangents of the half-complements of the latitudes, esteeming the last three figures to be a decimal fraction; and add the complement of its logarithm to the logarithm of the difference of longitude reduced to minutes, and the constant log. 10·1015104; the sum (abating radius) shall be the log. tangent of the course. And to the log. secant of the course, add the logarithm of the difference of latitude reduced to minutes, the sum (abating radius) shall be the logarithm of the distance in minutes.

Example. Given the Lizard to be in latitude 49° 55′ N, Barbadoes in 13° 10′ N, and their difference of longitude 53° 00′, or 3180′ W; to find the course and distance.

½ Co. lat. { Barbadoes 38° 25′ l. tan. 9·8993082 l. 3180′ = 3·5024271
{ Lizard 20 2½ l. tan. 9·5620477 const. log. 10·1015104
diff. 3372·605 its co. log. 6·4720346
Log. tang. of the course 49° 59′ 10″ SW - - - - - 10·0759721
Log. sec. of the course 49 59 10 - - - - - - 10·1918067
Log. of 2205′ diff. of the latitudes - - - - - - - 3·3434086
Log. of 3429·378 distance of Barbadoes from the Lizard 3·5352153

II. If two latitudes and the course be given, the difference of longitude is obtained with the same ease: for as the tangent of 51° 38′ 9″ is to the tangent of the course, so is the difference of the log. tangents of the half-complements of the latitudes, to the difference of longitude sought. Therefore, to the complement of the constant log. 10·1015104, add the log. of the difference of the log. tangents of the half-complements of the latitudes, and the log. tangent of the course, the sum (abating radius) will be the log. of the difference of longitude in minutes.

Example. Given the latitudes 49° 55′ and 13° 10′, and course 49° 59′ 10″; to find the difference of longitude.

Lat. 13° 10′, its ½ co. lat. 38° 25′ l. tan. 9·8993082
Lat. 49 55 - - - 20 2½ l. tan. 9·5620477 co. const. log. 9·8984896
diff. 3372·605 - its log. 3·5279654
Log. tang. of the course 49° 59′ 10″ - - - - - - 10·0759721
Log. of 3180′ = 53° for diff. of longitude - - - - 3·5024271

By this rule, having two good observations of the latitude, and the course duly steered, the reckoning of a ship's way is best ascertained, especially if you sail near the meridian.

III. If the latitude departed from, the course steered, and distance sailed, be given; to find the ship's latitude, and difference of longitude.

First, the latitude is obtained from the consideration that the distance is to the difference of latitude, as radius to the cosine of the course, which is common to plain sailing. Therefore to the log. of the distance add the log. cosine of the course, the sum (abating radius) is the log. of the difference of latitudes; which difference added to the lesser latitude, or subtracted from the greater, the sum or remainder is the present latitude: then having the two latitudes and the course, the difference of longitude is found by the second.

Example. Having sailed from the Lizard, in lat. 49° 55′ N, on a course 49° 59′ 10″ south-westerly 3429·378 miles: required what longitude and latitude the ship is found in.

Log. of 3429·378 the distance sailed	3·5352153
Log. cosine of 49° 59′ 10″ the course	9·8081933
Log. of 2205′, or 36° 45′ diff. of the latitudes	3·3434086

Now subtracting 36° 45′ from 49° 55′, the remainder 13° 10′ N, is the latitude the ship is found in.

By which latitude, now known, the difference of log. tangents will be found 3372·605, and the further process in nothing differing from the second rule, by which the difference of longitude will be found 53° 00′.

Thus the dead reckoning by the log line, and daily account of a ship's way, are duly kept, and the trouble very little more than by plain sailing.

These are all the cases that occur in practice; the rest, which are mostly speculative, are either easily reducible to these, or else not to be performed by logarithms, and therefore come not at present under our cognizance.

But it is to be noted, that both the complements of the latitudes are to be estimated from the same pole of the world; which may be from either; and therefore if one latitude be N, and the other S, to have their complements, you must add 90° to one of them, and subtract the other from 90, and then the operation will be the same as in the preceding cases.

Example. Given St. Jago, one of the Cape-de-Verd islands, in the latitude of 14° 56′ N; and the island St. Helena, in latitude 15° 45′ S, and their difference of longitude 30° 12′ E; to find the course and distance.

½ Co. lat.	St. Jago	52° 28′.	l. tan. 10·1144965	l. 1812′	3·2581582
	St. Helena	37 7½.	l. tan. 9·8790845	const. log.	10·1015104
			2354·120	its co. log.	6·6281714

Log. tang. of the course 44° 11′ 53″ SE	9·9878400
Log. sec. of the course 44 11 53	10·1445200
Log. of 1841′ diff. of the latitudes	3·2650538
Log. of 2567·875 distance of St. Helena from St. Jago	3·4095738

Or if it be thought easier, when one latitude is N, and the other S, you may add 90° to each of them, the sum of the log. tangents of their halves (abating twice the radius) will be the same as the difference of the log. tangents of the former. For an example, take the same latitudes as in the preceding.

Then 90° +	14° 56′ = 104° 56′	its half	52° 28′ l. tan.	10·1144965
	15 45 = 105 45		52 52½ l. tan.	10·1209155

The sum (abating twice the radius) equal to the former distance .... 2354·120

Also, when both latitudes are of the same name, that is both N or both S, you may add 90° to each of them, the difference of the log. tangents of half these sums will be the same as of the log. tangents of half the complements of those latitudes.

TABLE FOR THE LENGTHS OF CIRCULAR ARCS.

THIS is table 12, and constitutes page 340. It contains the lengths of every single degree up to 180, and of every minute, second, and third, each up to 60. The form of it is obvious; the length of each degree, minute, second or third, immediately following it on the same line in the next column. And the two following examples will show the use of the table.

Ex. 1. To find the length of an arc of 57° 17′ 44″ 48‴.

Take out from their respective columns the lengths answering to each of these numbers singly, and add them all together, thus:

57° . . .	0·9948377
17′ . . .	49451
44″ . . .	2133
48‴ . . .	39
the sum or	1·0000000

is the whole length, and is equal to the radius; that is, the length of an arc of 57° 17′ 44″ 48‴ is equal to the radius of the circle.

Ex. 2. To find the degrees, minutes, &c in the arc 1, which is equal to the radius.

Subtract from it the next less tabular arc, and from the remainder the next less again, and so on till nothing remain; and opposite to the several numbers subtracted, will be the degree, minutes, &c; thus:

Given length	1·0000000
57°	0.9948377
	51623
17′	49451
	2172
44″	2133
48‴	39

So that the arc which is equal the radius contains 57° 17′ 44″ 48

TABLE FOR COMPARING HYP. AND COMMON LOGS.

THIS is table 13, and is the upper part of page 341. It contains the hyperbolic logs. answering to the first 100 common logs. and is very useful for speedily changing the one into the other.

Ex. 1. To find the hyp. log. answering to the common log. 0·9542425.

Beginning at the left hand, and dividing the given number into periods of two figures each, including the index, take out the hyp. log. to each period, omitting two figures at the 2d period, four at the third, and six at the 4th; then add them all together, thus:

com. log.		hyp. log.
09	. .	2·0723266
54	. .	1243396
24	. .	5526
25	.	58
0·9542425		2·1972246 ans.

Ex. 2. To find the common log. answering to the hyp. log. 2.1972246.

Subtract continually each next less tabular hyp. log. from the given number, and from the remainders; and the several common logarithms answering to these tabular hyp. logs, joined together, will be the com. log. required, thus:

		hyp. log.
	given	2·1972246
09	. . .	2·0723226
		1248980
54	. . .	1243396
		5584
24	. . .	5526
		58
25	. .	58
0·9542425 answer.		

The remaining pages contain the small table of the names and degrees, &c, in the points of the compass; which needs no illustration; and a copious list of such errors, with their corrections, as have been discovered in the principal books of logarithms; among which are many that have been detected by myself, both in the Avignon edition of Gardiner, and in Gardiner's own quarto edition, as well as in the French tables by Callet, and by Didot; which renders this list more complete than any former one; and it will be found very useful in correcting those books of tables which are already in the possession of the public. As to all the editions of Sherwin's and Gardiner's tables in octavo, the errors in them are far too numerous to be printed in this or any other work, as they amount to many thousands, even in the edition of 1742, published by Gardiner, in which the last figures of the logarithms are usually not correct to the nearest unit, except in a very few pages at the beginning, and at the end of the table, so that it cannot be depended on for nice calculations.

TABLE I.

CONTAINING

THE LOGARITHMS OF ALL NUMBERS,

FROM 1 TO 100000.

(2) Numb. 1 to 100, and their Log. with Indices.				LOGARITHMS				N. 100 L. 00	
				N.	Log.	N.	Log.	N.	Log.
1	0·0000000	51	1·7075702	100	0000000	150	1760913	200	3010300
[illegible]	0·3010300	52	1·7160033	101	0043214	151	1789769	201	3031961
3	0·4771213	53	1·7242759	102	0086002	152	1818436	202	3053514
4	0·6020600	54	1·7323938	103	0128372	153	1846914	203	3074960
5	0·6989700	55	1·7403627	104	0170333	154	1875207	204	3096302
6	0·7781513	56	1·7481880	105	0211893	155	1903317	205	3117539
7	0·8450980	57	1·7558749	106	0253059	156	1931246	206	3138672
8	0·9030900	58	1·7634280	107	0293838	157	1958997	[illegible]	3159703
9	0·9542425	59	1·7708520	108	0334238	158	1986571	208	3180633
10	1·0000000	60	1·7781513	109	0374265	159	2013971	209	3201463
11	1·0413927	61	1·7853298	110	0413927	160	2041200	210	3222193
12	1·0791812	62	1·7923917	111	0453230	161	2068259	211	3242825
13	1·1139434	63	1·7993405	112	0492180	162	2095150	212	3263359
14	1·1461280	64	1·8061800	113	0530784	163	2121876	213	3283796
15	1·1760913	65	1·8129134	114	0569049	164	2148438	214	3304138
16	1·2041200	66	1·8195439	115	0606978	165	2174839	215	3324385
17	1·2304489	[illegible]	1·8260748	116	0644580	166	2201081	216	3344538
18	1·2552725	68	1·8325089	117	0681859	167	2227165	217	3364597
19	1·2787536	69	1·8388491	118	0718820	168	2253093	218	3384565
20	1·3010300	70	1·8450980	119	0755470	169	2278867	219	3404441
21	1·3222193	71	1·8512583	120	0791812	170	2304489	220	3424227
22	1·3424227	72	1·8573325	121	0827854	171	2329961	221	3443923
23	1·3617278	73	1·8633229	122	0863598	172	2355284	222	3463530
24	1·3802112	74	1·8692317	123	0899051	173	2380461	223	3483049
25	1·3979400	75	1·8750613	124	0934217	174	2405492	224	3502480
26	1·4149733	76	1·8808136	125	0969100	175	2430380	225	3521825
27	1·4313638	77	1·8864907	126	1003705	176	2455127	226	3541084
28	1·4471580	78	1·8920946	127	1038037	177	2479733	227	3560259
29	1·4623980	79	1·8976271	128	1072100	178	2504200	228	3579348
30	1·4771213	80	1·9030900	129	1105897	179	2528530	229	3598355
31	1·4913617	81	1·9084850	130	1139434	180	2552725	230	3617278
32	1·5051500	82	1·9138139	131	1172713	181	2576786	231	3636120
33	1·5185139	83	1·9190781	132	1205739	182	2600714	232	3654880
34	1·5314789	84	1·9242793	133	1238516	183	2624511	233	3673559
35	1·5440680	85	1·9294189	134	1271048	184	2648178	234	3692159
36	1·5563025	86	1·9344985	135	1303338	185	2671717	235	3710679
37	1·5682017	87	1·9395193	136	1335389	186	2695129	236	3729120
[illegible]	1·5797836	88	1·9444827	137	1367206	187	2718416	237	3747483
39	1·5910646	89	1·9493900	138	1398791	188	2741578	238	3765770
40	1·6020600	90	1·9542425	139	1430148	189	2764618	239	3783979
41	1·6127839	91	1·9590414	140	1461280	190	2787536	240	3802112
42	1·6232493	92	1·9637878	141	1492191	191	2810334	241	3820170
43	1·6334685	93	1·9684829	142	1522883	192	2833012	242	3838154
44	1·6434527	94	1·9731279	143	1553360	193	2855573	243	3856063
45	1·6532125	95	1·9777236	144	1583625	194	2878017	244	3873898
46	1·6627578	96	1·9822712	145	1613680	195	2900346	245	3891661
47	1·6720979	97	1·9867717	146	1643529	196	2922561	246	3909351
48	1·6812412	98	1·9912261	147	1673173	197	2944662	247	3926970
49	1·6901961	99	1·9956352	148	1702617	198	2966652	248	3944517
50	1·6989700	100	2·0000000	149	1731863	199	2988531	249	3961993
N	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

N.	0	1	2	3	4	5	6	7	8	9
50	0211893	2307	2720	3134	3547	3961	4374	4787	5201	5614
51	6027	6440	6854	7267	7680	8093	8506	8919	9332	9745
[illegible]	0220157	0570	0983	1396	1808	2221	2634	3046	3459	3871
[illegible]	4284	4696	5109	5521	5933	6345	6758	7170	7582	7994
[illegible]	8406	8818	9230	9642	$\overline{0}054$	0466	0878	1289	1701	2113
[illegible]	0232525	2936	3348	3759	4171	4582	4994	5405	5817	6228
[illegible]	6639	7050	7462	7873	8284	8695	9106	9517	9928	$\overline{0}339$
[illegible]	0240750	1161	1572	1982	2393	2804	3214	3625	4036	4446
[illegible]	4857	5267	5678	6088	6498	6909	7319	7729	8139	8549
[illegible]	8960	9370	9780	$\overline{0}190$	0600	1010	1419	1829	2239	2649
[illegible]	0253059	3468	3878	4288	4697	5107	5516	5926	6335	6744
[illegible]	7154	7563	7972	8382	8791	9200	9609	$\overline{0}018$	0427	0836
[illegible]	0261245	1654	2063	2472	2881	3289	3698	4107	4515	4924
[illegible]	5333	5741	6150	6558	6967	7375	7783	8192	8600	9008
[illegible]	9416	9824	$\overline{0}233$	0641	1049	1457	1865	2273	2680	3088
[illegible]	0273496	3904	4312	4719	5127	5535	5942	6350	6757	7165
[illegible]	7572	7979	8387	8794	9201	9609	$\overline{0}016$	0423	0830	1237
[illegible]	0281644	2051	2458	2865	3272	3679	4086	4492	4899	5306
[illegible]	5713	6119	6526	6932	7339	7745	8152	8558	8964	9371
[illegible]	9777	$\overline{0}183$	0590	0996	1402	1808	2214	2620	3026	3432
[illegible]	0293836	4244	4649	5055	5461	5867	6272	6678	7084	7489
[illegible]	7895	8300	8706	9111	9516	9922	$\overline{0}327$	0732	1138	1543
[illegible]	0301948	2353	2758	3163	3568	3973	4378	4783	5188	5592
[illegible]	5997	6402	6807	7211	7616	8020	8425	8830	9234	9638
[illegible]	0310043	0447	0851	1256	1660	2064	2468	2872	3277	3681
[illegible]	4085	4489	4893	5296	5700	6104	6508	6912	7315	7719
[illegible]	8123	8526	8930	9333	9737	$\overline{0}140$	0544	0947	1350	1754
[illegible]	0322157	2560	2963	3367	3770	4173	4576	4979	5382	5785
[illegible]	6188	6590	6993	7396	7799	8201	8604	9007	9409	9812
[illegible]	0330214	0617	1019	1422	1824	2226	2629	3031	3433	3835
[illegible]	4238	4640	5042	5444	5846	6248	6650	7052	7453	7855
[illegible]	8257	8659	9060	9462	9864	$\overline{0}265$	0667	1068	1470	1871
[illegible]	0342273	2674	3075	3477	3878	4279	4680	5081	5482	5884
[illegible]	6285	6686	7087	7487	7888	8289	8690	9091	9491	9892
[illegible]	0350293	0693	1094	1495	1895	2296	2696	3096	3497	3897
[illegible]	4297	4698	5098	5498	5898	6298	6698	7098	7498	7898
[illegible]	8298	8698	9098	9498	9898	$\overline{0}297$	0697	1097	1496	1896
[illegible]	0362295	2695	3094	3494	3893	4293	4692	5091	5491	5890
[illegible]	6289	6688	7087	7486	7885	8284	8683	9082	9481	9880
[illegible]	0370279	0678	1076	1475	1874	2272	2671	3070	3468	3867
[illegible]	4265	4663	5062	5460	5858	6257	6655	7053	7451	7849
[illegible]	8248	8646	9044	9442	9839	$\overline{0}237$	$\overline{0}635$	1033	1431	1829
[illegible]	0382226	2624	3022	3419	3817	4214	4612	5009	5407	5804
[illegible]	6202	6599	6996	7393	7791	8188	8585	8982	9379	9776
[illegible]	0390173	0570	0967	1364	1761	2158	2554	2951	3348	3745
[illegible]	4141	4538	4934	5331	5727	6124	6520	6917	7313	7709
[illegible]	8106	8502	8898	9294	9690	$\overline{0}086$	0482	0878	1274	1670
[illegible]	0402066	2462	2858	3254	3650	4045	4441	4837	5232	5628
[illegible]	6023	6419	6814	7210	7605	8001	8396	8791	9187	9582
[illegible]	9977	$\overline{0}372$	0767	1162	1557	1952	2347	2742	3137	3532
N.	0	1	2	3	4	5	6	7	8	9

Dif. & Pro. Pts.

	416	415	414
1	42	42	41
2	83	83	83
3	125	125	124
4	166	166	166
5	208	208	207
6	250	249	248
7	291	291	290
8	333	332	331
9	374	374	373

	413	412	411
1	41	41	41
2	83	82	82
3	124	124	123
4	165	165	164
5	207	206	206
6	248	247	247
7	289	288	288
8	330	330	329
9	372	371	370

	410	409	408
1	41	41	41
2	82	82	82
3	123	123	122
4	164	164	163
5	205	205	204
6	246	245	245
7	287	286	286
8	328	327	326
9	369	368	367

	407	406	405
1	41	41	41
2	81	81	81
3	122	122	122
4	163	162	162
5	204	203	203
6	244	244	243
7	285	284	284
8	326	325	324
9	366	365	365

	404	403	402
1	40	40	40
2	81	81	80
3	121	121	121
4	162	161	161
5	202	202	201
6	242	242	241
7	283	282	281
8	323	322	322
9	364	363	362

	401	400	399
1	40	40	40
2	80	80	80
3	120	120	120
4	160	160	160
5	201	200	200
6	241	240	239
7	281	280	279
8	321	320	319
9	361	360	359

Dif. & Pro. Pts.

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
500	6989700	550	7403627	600	7781513	650	8129134	700	8450980
501	6998377	551	7411516	601	7788745	651	8135810	701	8457180
502	7007037	552	7419391	602	7795965	652	8142476	702	8463371
503	7015680	553	7427251	603	7803173	653	8149132	703	8469553
504	7024305	554	7435098	604	7810369	654	8155777	704	8475727
505	7032914	555	7442930	605	7817554	655	8162413	705	8481891
506	7041505	556	7450748	606	7824726	656	8169038	706	8488047
507	7050080	557	7458552	607	7831887	657	8175654	707	8494194
508	7058637	558	7466342	608	7839036	658	8182259	708	8500333
509	7067178	559	7474118	609	7846173	659	8188854	709	8506462
510	7075702	560	7481880	610	7853298	660	8195439	710	8512583
511	7084209	561	7489629	611	7860412	661	8202015	711	8518696
512	7092700	562	7497363	612	7867514	662	8208580	712	8524800
513	7101174	563	7505084	613	7874605	663	8215135	713	8530895
514	7109631	564	7512791	614	7881684	664	8221681	714	8536982
515	7118072	565	7520484	615	7888751	665	8228216	715	8543060
516	7126497	566	7528164	616	7895807	666	8234742	716	8549130
517	7134905	567	7535831	617	7902852	667	8241258	717	8555192
518	7143298	568	7543483	618	7909885	668	8247765	718	8561244
519	7151674	569	7551123	619	7916906	669	8254261	719	8567289
520	7160033	570	7558749	620	7923917	670	8260748	720	8573325
521	7168377	571	7566361	621	7930916	671	8267225	721	8579353
522	7176705	572	7573960	622	7937904	672	8273693	722	8585372
523	7185017	573	7581546	623	7944880	673	8280151	723	8591383
524	7193313	574	7589119	624	7951846	674	8286599	724	8597386
525	7201593	575	7596678	625	7958800	675	8293038	725	8603380
526	7209857	576	7604225	626	7965743	676	8299467	726	8609366
527	7218106	577	7611758	627	7972675	677	8305887	727	8615344
528	7226339	578	7619278	628	7979596	678	8312297	728	8621314
529	7234557	579	7626786	629	7986506	679	8318698	729	8627275
530	7242759	580	7634280	630	7993405	680	8325089	730	8633229
531	7250945	581	7641761	631	8000294	681	8331471	731	8639174
532	7259116	582	7649230	632	8007171	682	8337844	732	8645111
533	7267272	583	7656686	633	8014037	683	8344207	733	8651040
534	7275413	584	7664128	634	8020893	684	8350561	734	8656961
535	7283538	585	7671559	635	8027737	685	8356906	735	8662873
536	7291648	586	7678976	636	8034571	686	8363241	736	8668778
537	7299743	587	7686381	637	8041394	687	8369567	737	8674675
538	7307823	588	7693773	638	8048207	688	8375884	738	8680564
539	7315888	589	7701153	639	8055009	689	8382192	739	8686444
540	7323938	590	7708520	640	8061800	690	8388491	740	8692317
541	7331973	591	7715875	641	8068580	691	8394780	741	8698182
542	7339993	592	7723217	642	8075350	692	8401061	742	8704039
543	7347998	593	7730547	643	8082110	693	8407332	743	8709888
544	7355989	594	7737864	644	8088859	694	8413595	744	8715729
545	7363965	595	7745170	645	8095597	695	8419848	745	8721563
546	7371926	596	7752463	646	8102325	696	8426092	746	8727388
547	7379873	597	7759743	647	8109043	697	8432328	747	8733206
548	7387806	598	7767012	648	8115750	698	8438554	748	8739016
549	7395723	599	7774268	649	8122447	699	8444772	749	8744818
N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
750	8750613	800	9030900	850	9294189	900	9542425	950	9777236
751	8756399	801	9036325	851	9299296	901	9547248	951	9781805
752	8762178	802	9041744	852	9304396	902	9552065	952	9786369
753	8767950	803	9047155	853	9309490	903	9556878	953	9790929
754	8773713	804	9052560	854	9314579	904	9561684	954	9795484
755	8779470	805	9057959	855	9319661	905	9566486	955	9800034
756	8785218	806	9063350	856	9324738	906	9571282	956	9804579
757	8790959	807	9068735	857	9329808	907	9576073	957	9809119
758	8796692	808	9074114	858	9334873	908	9580858	958	9813655
759	8802418	809	9079485	859	9339932	909	9585639	959	9818186
760	8808136	810	9084850	860	9344985	910	9590414	960	9822712
761	8813847	811	9090209	861	9350032	911	9595184	961	9827234
762	8819550	812	9095560	862	9355073	912	9599948	962	9831751
763	8825245	813	9100905	863	9360108	913	9604708	963	9836263
764	8830934	814	9106244	864	9365137	914	9609462	964	9840770
765	8836614	815	9111576	865	9370161	915	9614211	965	9845273
766	8842288	816	9116902	866	9375179	916	9618955	966	9849771
767	8847954	817	9122221	867	9380191	917	9623693	967	9854265
768	8853612	818	9127533	868	9385197	918	9628427	968	9858754
769	8859263	819	9132839	869	9390198	919	9633155	969	9863238
770	8864907	820	9138139	870	9395193	920	9637878	970	9867717
771	8870544	821	9143432	871	9400182	921	9642596	971	9872192
772	8876173	822	9148718	872	9405165	922	9647309	972	9876663
773	8881795	823	9153998	873	9410142	923	9652017	973	9881128
774	8887410	824	9159272	874	9415114	924	9656720	974	9885590
775	8893017	825	9164539	875	9420081	925	9661417	975	9890046
776	8898617	826	9169800	876	9425041	926	9666110	976	9894498
777	8904210	827	9175055	877	9429996	927	9670797	977	9898946
778	8909796	828	9180303	878	9434945	928	9675480	978	9903389
779	8915375	829	9185545	879	9439889	929	9680157	979	9907827
780	8920946	830	9190781	880	9444827	930	9684829	980	9912261
781	8926510	831	9196010	881	9449759	931	9689497	981	9916690
782	8932068	832	9201233	882	9454686	932	9694159	982	9921115
783	8937618	833	9206450	883	9459607	933	9698816	983	9925535
784	8943161	834	9211661	884	9464523	934	9703469	984	9929951
785	8948697	835	9216865	885	9469433	935	9708116	985	9934362
786	8954225	836	9222063	886	9474337	936	9712758	986	9938769
787	8959747	837	9227255	887	9479236	937	9717396	987	9943172
788	8965262	838	9232440	888	9484130	938	9722028	988	9947569
789	8970770	839	9237620	889	9489018	939	9726656	989	9951963
790	8976271	840	9242793	890	9493900	940	9731279	990	9956352
791	8981765	841	9247960	891	9498777	941	9735896	991	9960737
792	8987252	842	9253121	892	9503649	942	9740509	992	9965117
793	8992732	843	9258276	893	9508515	943	9745117	993	9969492
794	8998205	844	9263424	894	9513375	944	9749720	994	9973864
795	9003671	845	9268567	895	9518230	945	9754318	995	9978231
796	9009131	846	9273704	896	9523080	946	9758911	996	9982593
797	9014583	847	9278834	897	9527924	947	9763500	997	9986952
798	9020029	848	9283959	898	9532763	948	9768083	998	9991305
799	9025468	849	9289077	899	9537597	949	9772662	999	9995655
N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.

N.	0	1	2	3	4	5	6	7	8	9
1000	0000000	0434	0869	1303	1737	2171	2605	3039	3473	3907
01	4341	4775	5208	5642	6076	6510	6943	7377	7810	8244
02	8677	9111	9544	9977	$\bar{0}$411	0844	1277	1710	2143	2576
03	0013009	3442	3875	4308	4741	5174	5607	6039	6472	6905
04	7337	7770	8202	8635	9067	9499	9932	$\bar{0}$364	0796	1228
05	0021661	2093	2525	2957	3389	3821	4253	4685	5116	5548
[illegible]	5980	6411	6843	7275	7706	8138	8569	9001	9432	9863
07	0030295	0726	1157	1588	2019	2451	2882	3313	3744	4174
08	4605	5036	5467	5898	6328	6759	7190	7620	8051	8481
09	8912	9342	9772	$\bar{0}$203	0633	1063	1493	1924	2354	2784
1010	0043214	3644	4074	4504	4933	5363	5793	6223	6652	7082
11	7512	7941	8371	8800	9229	9659	$\bar{0}$088	0517	0947	1376
12	0051805	2234	2663	3092	3521	3950	4379	4808	5237	5666
13	6094	6523	6952	7380	7809	8238	8666	9094	9523	9951
14	0060380	0808	1236	1664	2092	2521	2949	3377	3805	4233
15	4660	5088	5516	5944	6372	6799	7227	7655	8082	8510
16	8937	9365	9792	$\bar{0}$219	0647	1074	1501	1928	2355	2782
17	0073210	3637	4064	4490	4917	5344	5771	6198	6624	7051
18	7478	7904	8331	8757	9184	9610	$\bar{0}$037	0463	0889	1316
19	0081742	2168	2594	3020	3446	3872	4298	4724	5150	5576
1020	6002	6427	6853	7279	7704	8130	8556	8981	9407	9832
21	0090257	0683	1108	1533	1959	2384	2809	3234	3659	4084
22	4509	4934	5359	5784	6208	6633	7058	7483	7907	8332
23	8756	9181	9605	$\bar{0}$030	0454	0878	1303	1727	2151	2575
24	0103000	3424	3848	4272	4696	5120	5544	5967	6391	6815
25	7239	7662	8086	8510	8933	9357	9780	$\bar{0}$204	0627	1050
26	0111474	1897	2320	2743	3166	3590	4013	4436	4859	5282
27	5704	6127	6550	6973	7396	7818	8241	8664	9086	9509
28	9931	$\bar{0}$354	0776	1198	1621	2043	2465	2887	3310	3732
29	0124154	4576	4998	5420	5842	6264	6685	7107	7529	7951
1030	8372	8794	9215	9637	$\bar{0}$059	0480	0901	1323	1744	2165
31	0132587	3008	3429	3850	4271	4692	5113	5534	5955	6376
32	6797	7218	7639	8059	8480	8901	9321	9742	$\bar{0}$162	0583
33	0141003	1424	1844	2264	2685	3105	3525	3945	4365	4785
34	5205	5625	6045	6465	6885	7305	7725	8144	8564	8984
35	9403	9823	$\bar{0}$243	0662	1082	1501	1920	2340	2759	3178
36	0153598	4017	4436	4855	5274	5693	6112	6531	6950	7369
37	7788	8206	8625	9044	9462	9881	$\bar{0}$300	0718	1137	1555
38	0161974	2392	2810	3229	3647	4065	4483	4901	5319	5737
39	6155	6573	6991	7409	7827	8245	8663	9080	9498	9916
1040	0170333	0751	1168	1586	2003	2421	2838	3256	3673	4090
41	4507	4924	5342	5759	6176	6593	7010	7427	7844	[illegible]
42	8677	9094	9511	9927	$\bar{0}$344	0761	1177	1594	2010	2427
43	0182843	3259	3676	4092	4508	4925	5341	5757	6173	6589
44	7005	7421	7837	8253	8669	9084	9500	9916	$\bar{0}$332	0747
45	0191163	1578	1994	2410	2825	3240	3656	4071	4486	4902
46	5317	5732	6147	6562	6977	7392	7807	8222	8637	9052
47	9467	9882	$\bar{0}$296	0711	1126	1540	1955	2369	2784	3198
48	0203613	4027	4442	4856	5270	5684	6099	6513	6927	7341
49	7755	8169	8583	8997	9411	9824	$\bar{0}$238	0652	1066	1479
N.	0	1	2	3	4	5	6	7	8	9

Dif. & Pro. Pts.

	434	433	432
1	43	[illegible]	43
2	87	87	86
3	130	130	130
4	174	173	173
5	217	217	216
6	260	260	259
7	304	303	302
8	347	346	346
9	391	390	389

	431	430	429
1	43	43	43
2	86	86	86
3	129	129	129
4	172	172	172
5	216	215	215
6	259	258	257
7	302	301	300
8	345	344	343
9	388	387	386

	428	427	426
1	43	43	43
2	86	85	85
3	128	128	128
4	171	171	170
5	214	214	213
6	257	256	256
7	300	299	298
8	342	342	341
9	385	384	383

	425	424	423
1	43	42	42
2	85	85	85
3	128	127	127
4	170	170	169
5	213	212	212
6	255	254	254
7	298	297	296
8	340	339	338
9	383	382	381

	422	421	420
1	42	42	42
2	84	84	84
3	127	126	126
4	169	168	168
5	211	211	210
6	253	253	252
7	295	295	294
8	338	337	336
9	380	379	378

	419	418	417
1	42	42	42
2	84	84	83
3	126	125	125
4	168	167	167
5	210	209	208
6	251	251	250
7	293	293	292
8	335	[illegible]	[illegible]
9	377	376	375

Dif. & Pro. Pts.

N.	0	1	2	3	4	5	6	7	8	9
1250	0969100	9448	9795	0142	0490	0837	1184	1531	1879	2226
51	0972573	2920	3267	3614	3962	4309	4656	5003	5349	5696
52	6043	6390	6737	7084	7431	7777	8124	8471	8817	9164
53	9511	9857	0204	0550	0897	1243	1590	1936	2283	2629
54	0982975	3322	3668	4014	4360	4707	5053	5399	5745	6091
55	6437	6783	7129	7475	7821	8167	8513	8859	9205	9551
56	9896	0242	0588	0934	1279	1625	1971	2316	2662	3007
57	0993353	3698	4044	4389	4735	5080	5425	5771	6116	6461
58	6806	7152	7497	7842	8187	8532	8877	9222	9567	9912
59	1000257	0602	0947	1292	1637	1982	2327	2671	3016	3361
1260	3705	4050	4395	4739	5084	5429	5773	6118	6462	6806
61	7151	7495	7840	8184	8528	8873	9217	9561	9905	0249
62	1010594	0938	1282	1626	1970	2314	2658	3002	3346	3690
63	4034	4377	4721	5065	5409	5752	6096	6440	6784	7127
64	7471	7814	8158	8501	8845	9188	9532	9875	0219	0562
65	1020905	1249	1592	1935	2278	2621	2965	3308	3651	3994
66	4337	4680	5023	5366	5709	6052	6395	6738	7081	7423
67	7766	8109	8452	8794	9137	9480	9822	0165	0507	0850
68	1031193	1535	1877	2220	2562	2905	3247	3589	3932	4274
69	4616	4958	5301	5643	5985	6327	6669	7011	7353	7695
1270	8037	8379	8721	9063	9405	9747	0089	0430	0772	1114
71	1041456	1797	2139	2480	2822	3164	3505	3847	4188	4530
72	4871	5213	5554	5895	6237	6578	6919	7260	7602	7943
73	8284	8625	8966	9307	9648	9989	0331	0671	1012	1353
74	1051694	2035	2376	2717	3058	3398	3739	4080	4421	4761
75	5102	5442	5783	6124	6464	6805	7145	7486	7826	8166
76	8507	8847	9187	9528	9868	0208	0548	0889	1229	1569
77	1061909	2249	2589	2929	3269	3609	3949	4289	4629	4969
78	5309	5648	5988	6328	6668	7007	7347	7687	8026	8366
79	8705	9045	9385	9724	0063	0403	0742	1082	1421	1760
1280	1072100	2439	2778	3117	3457	3796	4135	4474	4813	5152
81	5491	5830	6169	6508	6847	7186	7525	7864	8203	8541
82	8880	9219	9558	9896	0235	0574	0912	1251	1590	1928
83	1082267	2605	2944	3282	3620	3959	4297	4635	4974	5312
84	5650	5988	6327	6665	7003	7341	7679	8017	8355	8693
85	9031	9369	9707	0045	0383	0721	1059	1396	1734	2072
86	1092410	2747	3085	3423	3760	4098	4435	4773	5111	5448
87	5785	6123	6460	6798	7135	7472	7810	8147	8484	8821
88	9159	9496	9833	0170	0507	0844	1181	1518	1855	2192
89	1102529	2866	3203	3540	3877	4213	4550	4887	5224	5560
1290	5897	6234	6570	6907	7244	7580	7917	8253	8590	8926
91	9262	9599	9935	0272	0608	0944	1280	1617	1953	2289
92	1112625	2961	3297	3633	3969	4306	4642	4977	5313	5649
93	5985	6321	6657	6993	7329	7664	8000	8336	8671	9007
94	9343	9678	0014	0350	0685	1021	1356	1691	2027	2362
95	1122698	3033	3368	3704	4039	4374	4709	5045	5380	5715
96	6050	6385	6720	7055	7390	7725	8060	8395	8730	9065
97	9400	9735	0069	0404	0739	1074	1408	1743	2078	2412
98	1132747	3081	3416	3751	4085	4420	4754	5088	5423	5757
99	6092	6426	6760	7094	7429	7763	8097	8431	8765	9099
N.	0	1	2	3	4	5	6	7	8	9

Differ.

	344	343
1	34	34
2	69	69
3	103	103
4	138	137
5	172	172
6	206	206
7	241	240
8	275	274
9	310	309

	342	341
1	34	34
2	68	68
3	103	102
4	137	136
5	171	171
6	205	205
7	239	239
8	274	273
9	308	307

	340	339
1	34	34
2	68	68
3	102	102
4	136	136
5	170	170
6	204	203
7	238	237
8	272	271
9	306	305

	338	337
1	34	34
2	68	67
3	101	101
4	135	135
5	169	169
6	203	202
7	237	236
8	270	270
9	304	303

	336	335
1	34	34
2	67	67
3	101	101
4	134	134
5	168	168
6	202	201
7	235	235
8	269	268
9	302	302

	334	333
1	33	33
2	67	67
3	100	100
4	134	133
5	167	167
6	200	200
7	234	233
8	267	266
9	301	300

Differ.

N.	0	1	2	3	4	5	6	7	8	9
1300	1139434	9768	$\bar{0}$102	0436	0770	1104	1437	1771	2105	2436
01	1142773	3107	3441	3774	4108	4442	4775	5109	5443	5776
02	6110	6443	6777	7110	7444	7777	8111	8444	8777	9111
03	9444	9777	$\bar{0}$111	0444	0777	1110	1444	1777	2110	2443
04	1152776	3109	3442	3775	4108	4441	4774	5107	5439	5772
[illegible]	6105	6438	6771	7103	7436	7769	8101	8434	8767	9099
06	9432	9764	$\bar{0}$097	0429	0762	1094	1427	1759	2091	2424
07	1162756	3088	3420	3753	4085	4417	4749	5081	5413	5745
08	6077	6409	6741	7073	7405	7737	8069	8401	8733	9065
09	9396	9728	$\bar{0}$060	0392	0723	1055	1387	1718	2050	2381
1310	1172713	3044	3376	3707	4039	4370	4702	5033	5364	5696
11	6027	6358	6689	7021	7352	7683	8014	8345	8676	9007
12	9338	9669	$\bar{0}$000	0331	0662	0993	1324	1655	1986	2316
13	1182647	2978	3309	3639	3970	4301	4631	4962	5293	5623
14	5954	6284	6615	6945	7276	7606	7936	8267	8597	8927
15	9258	9588	9918	$\bar{0}$248	0578	0909	1239	1569	1899	2229
16	1192559	2889	3219	3549	3879	4209	4539	4868	5198	5528
17	5858	6187	6517	6847	7177	7506	7836	8165	8495	8825
18	9154	9484	9813	$\bar{0}$143	0472	0801	1131	1460	1789	2119
19	1202448	2777	3106	3436	3765	4094	4423	4752	5081	5410
1320	5739	6069	6397	6726	7055	7384	7713	8042	8371	8699
21	9028	9357	9686	$\bar{0}$014	0343	0672	1000	1329	1657	1986
22	1212315	2643	2972	3300	3628	3957	4285	4614	4942	5270
23	5598	5927	6255	6583	6911	7239	7568	7896	8224	8552
24	8880	9208	9536	9864	$\bar{0}$192	0520	0848	1175	1503	1831
25	1222159	2487	2814	3142	3470	3797	4125	4453	4780	5108
26	5435	5763	6090	6418	6745	7073	7400	7727	8055	8382
27	8709	9036	9364	9691	$\bar{0}$018	0345	0672	1000	1327	1654
28	1231981	2308	2635	2962	3289	3616	3942	4269	4596	4923
29	5250	5577	5903	6230	6557	6883	7210	7537	7863	8190
1330	8516	8843	9169	9496	9822	$\bar{0}$149	0475	0802	1128	1454
31	1241781	2107	2433	2759	3086	3412	3738	4064	4390	4716
32	5042	5368	5694	6020	6346	6672	6998	7324	7650	7976
33	8301	8627	8953	9279	9605	9930	$\bar{0}$256	0582	0907	1233
34	1251558	1884	2209	2535	2860	3186	3511	3837	4162	4487
35	4813	5138	5463	5788	6114	6439	6764	7089	7414	7739
36	[illegible]	8390	8715	9040	9365	9690	$\bar{0}$015	0339	0664	0989
37	1261314	1639	1964	2288	2613	2938	3263	3587	3912	[illegible]
38	4561	4886	5210	5535	5859	6184	6508	6833	7157	7481
39	7806	8130	8454	8779	9103	9427	9751	$\bar{0}$076	0400	0724
1340	1271048	1372	1696	[illegible]	2344	2668	2992	3316	3640	3964
41	4288	4612	4935	5259	5583	5907	6230	6554	6878	7202
42	7525	7849	8172	8496	8819	9143	9466	9790	$\bar{0}$113	0437
43	1280760	1083	1407	1730	2053	2377	2700	[illegible]	[illegible]	3670
44	3993	4316	4639	4962	5285	5608	5931	6254	6577	6900
45	7223	7546	7869	8191	8514	8837	9160	9483	9805	$\bar{0}$128
46	1290451	[illegible]	1096	1418	1741	2064	2386	2709	3031	3354
47	3676	3998	4321	4643	4965	5288	5610	5932	6255	6577
48	6899	7221	7543	7865	8187	8510	8832	9154	9476	9798
49	1300119	0441	0763	1085	1407	1729	2051	2372	2694	3016
N.	0	1	2	3	4	5	6	7	8	9

N.	0	1	2	3	4	5	[illegible]	7	8	9
1350	1303338	3659	3981	4303	4624	4946	5267	5589	5911	6232
51	6553	6875	7196	7518	7839	8161	8482	8803	9124	[illegible]
52	9767	$\overline{0}$088	0409	0730	1052	1373	1694	2015	2336	2657
53	1312978	3299	3620	3941	4262	4583	4903	5224	5545	5866
54	6187	6507	6828	7149	7469	7790	8111	8431	8752	9072
55	9393	9713	$\overline{0}$034	0354	0675	0995	1316	1636	1956	2277
[illegible]	1322597	2917	3237	3558	3878	4198	4518	4838	5158	5478
57	5798	6119	6439	6758	7078	7398	7718	8038	8358	8678
58	8998	9317	9637	9957	$\overline{0}$277	0596	0916	1236	1555	1875
59	1332195	2514	2834	3153	3473	3792	4112	4431	4750	5070
1360	5389	5708	6028	6347	6666	6985	7305	7624	7943	8262
[illegible]	8581	8900	9219	9538	9857	$\overline{0}$176	0495	0814	1133	1452
62	1341771	2090	2409	2728	3046	3365	3684	4003	4321	4640
63	4959	5277	5596	5914	6233	6551	6870	7188	7507	7825
64	8144	8462	8780	9099	9417	9735	$\overline{0}$054	0372	0690	1008
65	1351327	1645	1963	2281	2599	2917	3235	3553	3871	4189
66	4507	4825	5143	5461	5779	6096	6414	6732	7050	7367
67	7685	8003	8320	8638	8956	9273	9591	[illegible]	$\overline{0}$226	0543
68	1360861	1178	1496	1813	2131	2448	2765	3083	3400	3717
69	4034	4352	4669	4986	5303	5620	5937	6255	6572	6889
1370	7206	7523	7840	8157	8473	8790	9107	9424	9741	$\overline{0}$058
71	1370375	0691	1008	1325	1641	1958	2275	2591	2908	3225
72	3541	3858	4174	4491	4807	5124	5440	5756	6073	6389
73	6705	7022	7338	7654	7970	8287	8603	8919	9235	9551
74	9867	$\overline{0}$183	0499	0815	1131	1447	1763	2079	2395	2711
75	1383027	3343	3659	3974	4290	4606	4922	5237	5553	5869
76	6184	6500	6816	7131	7447	7762	8078	8393	8709	9024
77	9339	9655	9970	$\overline{0}$285	0601	0916	1231	1547	1862	2177
78	1392492	2807	3122	3438	3753	4068	4383	4698	5013	5328
79	5643	5958	6272	6587	6902	7217	7532	7847	8161	8476
1380	8791	9106	9420	9735	$\overline{0}$050	0364	0679	0993	1308	1622
81	1401937	2251	2566	2880	3195	3509	3823	4138	4452	4766
82	5080	5395	5709	6023	6337	6651	6966	7280	7594	7908
83	8222	8536	8850	9164	9478	9792	$\overline{0}$106	0419	0733	1047
84	1411361	1675	1988	2302	2616	2930	3243	3557	3871	4184
85	4498	4811	5125	5438	5752	6065	6379	6692	7006	7319
86	7632	7946	8259	8572	8885	9199	9512	9825	$\overline{0}$138	0451
87	1420765	1078	1391	1704	2017	2330	2643	2956	3269	3582
88	3895	4208	4520	4833	5146	5459	5772	6084	6397	6710
89	7022	7335	7648	7960	8273	8586	8898	9211	9523	9836
1390	1430148	0460	0773	1085	1398	1710	2022	2335	2647	2959
91	3271	3584	3896	4208	4520	4832	5144	5456	5768	6080
92	6392	6704	7016	7328	7640	7952	8264	8576	8888	9199
93	9511	9823	$\overline{0}$135	0446	0758	1070	1381	1693	2005	2316
94	1442628	2939	3251	3562	3874	4185	4497	4808	5119	5431
95	5742	6053	6365	6676	6987	7298	7610	7921	8232	8543
96	8854	9165	9476	9787	$\overline{0}$098	0409	0720	1031	1342	1653
97	1451964	2275	2586	2897	3207	3518	3829	4140	4450	4761
98	5072	5382	5693	6004	6314	6625	6935	7246	7556	7867
99	8177	8488	8798	9108	9419	9729	$\overline{0}$039	0350	0660	0970
N.	0	1	2	[illegible]	4	[illegible]	6	7	8	9

Differ.

	322	321		320	319		318	317
1	32	32	1	32	32	1	32	32
2	64	64	2	64	64	2	64	[illegible]
3	97	96	3	96	96	3	95	95
4	129	128	4	128	128	4	127	127
5	161	161	5	160	160	5	159	159
6	193	193	6	192	191	6	191	190
7	225	225	7	224	223	7	223	222
8	258	257	8	256	255	8	254	254
9	290	289	9	288	287	9	286	285

	316	315		314	313		312	311
1	32	32	1	31	31	1	31	31
2	63	63	2	63	63	2	62	62
3	95	95	3	94	94	3	94	93
4	126	126	4	126	125	4	125	124
5	158	158	5	157	157	5	156	156
6	190	189	6	188	188	6	187	187
7	221	221	7	220	219	7	218	218
8	253	252	8	251	250	8	250	249
9	284	284	9	283	282	9	281	280

Differ.

N.	0	1	2	3	4	5	6	7	8	9
1200	0791812	2174	2536	2898	3260	3622	3983	4345	4707	5068
01	5430	5792	6153	6515	6876	7238	7599	7961	8322	8683
02	9045	9406	9767	0̄128	0490	0851	1212	1573	1934	2295
03	0802656	3017	3378	3739	4100	4461	4822	5183	5543	5904
04	6265	6626	6986	7347	7707	8068	8429	8789	9150	9510
05	9870	0̄231	0591	0952	1312	1672	2032	2393	2753	3113
06	0813473	3833	4193	4553	4913	5273	5633	5993	6353	6713
07	7073	7432	7792	8152	8512	8871	9231	9591	9950	0̄310
08	0820669	1029	1388	1748	2107	2467	2826	3185	3545	3904
09	4263	4622	4981	5341	5700	6059	6418	6777	7136	7495
1210	7854	8213	8571	8930	9289	9648	0̄007	0365	0724	1083
11	0831441	1800	2159	2517	2876	3234	3593	3951	4309	4668
12	5026	5385	5743	6101	6459	6817	7176	7534	7892	8250
13	8608	8966	9324	9682	0̄040	0398	0756	1114	1471	1829
14	0842187	2545	2902	3260	3618	3975	4333	4690	5048	5405
15	5763	6120	6478	6835	7192	7550	7907	8264	8621	8979
16	9336	9693	0̄050	0407	0764	1121	1478	1835	2192	2549
17	0852906	3263	3619	3976	4333	4690	5046	5403	5760	6116
18	6473	6829	7186	7542	7899	8255	8612	8968	9324	9681
19	0860037	0393	0750	1106	1462	1818	2174	2530	2886	3242
1220	3598	3954	4310	4666	5022	5378	5734	6089	6445	6801
21	7157	7512	7868	8224	8579	8935	9290	9646	0̄001	0357
22	0870712	1067	1423	1778	2133	2489	2844	3199	3554	3909
23	4265	4620	4975	5330	5685	6040	6395	6750	7104	7459
24	7814	8169	8524	8878	9233	9588	9943	0̄297	0652	1006
25	0881361	1715	2070	2424	2779	3133	3488	3842	4196	4550
26	4905	5259	5613	5967	6321	6676	7030	7384	7738	8092
27	8446	8800	9153	9507	9861	0̄215	0569	0923	1276	1630
28	0891984	2337	2691	3045	3398	3752	4105	4459	4812	5165
29	5519	5872	6226	6579	6932	7285	7639	7992	8345	8698
1230	9051	9404	9757	0̄110	0463	0816	1169	1522	1875	2228
31	0902581	2933	3286	3639	3991	4344	4697	5049	5402	5755
32	6107	6460	6812	7164	7517	7869	8222	8574	8926	9279
33	9631	9983	0̄335	0687	1039	1392	1744	2096	2448	2800
34	0913152	3504	3855	4207	4559	4911	5263	5614	5966	6318
35	6670	7021	7373	7724	8076	8427	8779	9130	9482	9833
36	0920185	0536	0887	1239	1590	1941	2292	2644	2995	3346
37	3697	4048	4399	4750	5101	5452	5803	6154	6505	6856
38	7206	7557	7908	8259	8609	8960	9311	9661	0̄012	0363
39	0930713	1064	1414	1764	2115	2465	2816	3166	3516	3867
1240	4217	4567	4917	5267	5618	5968	6318	6668	7018	7368
41	7718	8068	8418	8768	9117	9467	9817	0̄167	0517	0866
42	0941216	1566	1915	2265	2614	2964	3313	3663	4012	4362
43	4711	5061	5410	5759	6109	6458	6807	7156	7506	7855
44	8204	8553	8902	9251	9600	9949	0̄298	0647	0996	1345
45	0951694	2042	2391	2740	3089	3437	3786	4135	4483	4832
46	5180	5529	5877	6226	6574	6923	7271	7620	7968	8316
47	8665	9013	9361	9709	0̄057	0106	0754	1102	1450	1798
48	0962146	2494	2842	3190	3538	3885	4233	4581	4929	5277
49	5624	5972	6320	6667	7015	7363	7710	8058	8405	8753
N.	0	1	2	3	4	5	6	7	8	9

Dif. & Pro. Pts.

	362	361	360
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2	72	72	72
3	109	108	108
4	145	144	144
5	181	181	180
6	217	217	216
7	253	253	252
8	290	289	288
9	326	325	324
	359	358	357
1	36	36	36
2	72	72	71
3	108	107	107
4	144	143	143
5	180	179	179
6	215	215	214
7	251	251	250
8	287	286	286
9	323	322	321
	356	355	354
1	36	36	35
2	71	71	71
3	107	107	106
4	142	142	142
5	178	178	177
6	214	213	212
7	249	249	248
8	285	284	283
9	320	320	319
	353	352	351
1	35	35	35
2	71	70	70
3	106	106	105
4	141	141	140
5	177	176	176
6	212	211	211
7	247	246	246
8	282	282	281
9	318	317	316
	350	349	348
1	35	35	35
2	70	70	70
3	105	105	104
4	140	140	139
5	175	175	174
6	210	209	209
7	245	244	244
8	280	279	278
9	315	314	313
	347	346	345
1	35	35	35
2	69	69	69
3	104	104	104
4	139	138	138
5	174	173	173
6	208	208	207
7	243	242	242
8	278	277	276
9	312	311	311

Dif. & Pro. Pts.

N.	0	1	2	3	4	5	6	7	8	9
1450	1613680	3980	4279	4578	4878	5177	5477	5776	6075	6375
51	6674	6973	7273	7572	7871	8170	8470	8769	9068	9367
52	9666	9965	0264	0563	0862	1161	1460	1759	2058	2357
53	1622656	2955	3254	3553	3852	4150	4449	4748	5047	5345
54	5644	5943	6241	6540	6839	7137	7436	7734	8033	8331
55	8630	8928	9227	9525	9824	0122	0420	0719	1017	1315
56	1631614	1912	2210	2508	2807	3105	3403	3701	3999	4297
57	4596	4894	5192	5490	5788	6086	6384	6682	6979	7277
58	7575	7873	8171	8469	8767	9064	9362	9660	9958	0255
59	1640553	0851	1148	1446	1743	2041	2339	2636	2934	3231
1460	3529	3826	4123	4421	4718	5016	5313	5610	5908	6205
61	6502	6799	7097	7394	7691	7988	8285	8582	8880	9177
62	9474	9771	0068	0365	0662	0959	1256	1553	1850	2146
63	1652443	2740	3037	3334	3631	3927	4224	4521	4817	5114
64	5411	5707	6004	6301	6597	6894	7190	7487	7783	8080
65	8376	8673	8969	9265	9562	9858	0155	0451	0747	1043
66	1661340	1636	1932	2228	2525	2821	3117	3413	3709	4005
67	4301	4597	4893	5189	5485	5781	6077	6373	6669	6965
68	7261	7556	7852	8148	8444	8740	9035	9331	9627	9922
69	1670218	0514	0809	1105	1400	1696	1991	2287	2582	2878
1470	3173	3469	3764	4060	4355	4650	4946	5241	5536	5831
71	6127	6422	6717	7012	7308	7603	7898	8193	8488	8783
72	9078	9373	9668	9963	0258	0553	0848	1143	1438	1733
73	1682027	2322	2617	2912	3207	3501	3796	4091	4386	4680
74	4975	5269	5564	5859	6153	6448	6742	7037	7331	7626
75	7920	8215	8509	8803	9098	9392	9686	9981	0275	0569
76	1690864	1158	1452	1746	2040	2335	2629	2923	3217	3511
77	3805	4099	4393	4687	4981	5275	5569	5863	6157	6450
78	6744	7038	7332	7626	7920	8213	8507	8801	9094	9388
79	9682	9975	0269	0563	0856	1150	1443	1737	2030	2324
1480	1702617	2911	3204	3497	3791	4084	4377	4671	4964	5257
81	5551	5844	6137	6430	6723	7017	7310	7603	7896	8189
82	8482	8775	9068	9361	9654	9947	0240	0533	0826	1119
83	1711412	1704	1997	2290	2583	2876	3168	3461	3754	4046
84	4339	4632	4924	5217	5509	5802	6095	6387	6680	6972
85	7265	7557	7849	8142	8434	8727	9019	9311	9604	9896
86	1720188	0480	0773	1065	1357	1649	1941	2233	2526	2818
87	3110	3402	3694	3986	4278	4570	4862	5154	5446	5737
88	6029	6321	6613	6905	7197	7488	7780	8072	8364	8655
89	8947	9239	9530	9822	0113	0405	0697	0988	1280	1571
1490	1731863	2154	2446	2737	3028	3320	3611	3903	4194	4485
91	4776	5068	5359	5650	5941	6233	6524	6815	7106	7397
92	7688	7979	8270	8561	8852	9143	9434	9725	0016	0307
93	1740598	0889	1180	1471	1761	2052	2343	2634	2925	3215
94	3506	3797	4087	4378	4669	4959	5250	5540	5831	6121
95	6412	6702	6993	7283	7574	7864	8155	8445	8735	9026
96	9316	9606	9897	0187	0477	0767	1057	1348	1638	1928
97	1752218	2508	2798	3088	3378	3668	3958	4248	4538	4828
98	5118	5408	5698	5988	6278	6567	6857	7147	7437	7727
99	8016	8306	8596	8885	9175	9465	9754	0044	0333	0623

N. 0 1 2 3 4 5 6 7 8 9

Differ.

	298	297
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2	60	59
3	89	89
4	119	119
5	149	149
6	179	178
7	209	208
8	238	238
9	268	267

	296	295
1	30	30
2	59	59
3	89	89
4	118	118
5	148	148
6	178	177
7	207	207
8	237	236
9	266	266

	294	293
1	29	29
2	59	59
3	88	88
4	118	117
5	147	147
6	176	176
7	206	205
8	235	234
9	265	264

	292	291
1	29	29
2	58	58
3	88	87
4	117	116
5	146	146
6	175	175
7	204	204
8	234	233
9	263	262

	290	289
1	29	29
2	58	58
3	87	87
4	116	116
5	145	145
6	174	173
7	203	202
8	232	231
9	261	260

Differ.

N.	0	1	2	3	4	5	6	7	8	9
1300	1139434	9768	0̄102	0436	0770	1104	1437	1771	2105	2439
01	1142773	3107	3441	3774	4108	4442	4775	5109	5443	5776
02	6110	6443	6777	7110	7444	7777	8111	8444	8777	9111
03	9444	9777	0̄111	0444	0777	1110	1444	1777	2110	2443
04	1152776	3109	3442	3775	4108	4441	4774	5107	5439	5772
05	6105	6438	6771	7103	7436	7769	8101	8434	8767	9099
06	9432	9764	0̄097	0429	0762	1094	1427	1759	2091	2424
07	1162756	3088	3420	3753	4085	4417	4749	5081	5413	5745
[illegible]	6077	6409	6741	7073	7405	7737	8069	8401	8733	9065
09	9396	9728	0̄060	0392	0723	1055	1387	1718	2050	2381
1310	1172713	3044	3376	3707	4039	4370	4702	5033	5364	5696
11	6027	6358	6689	7021	7352	7683	8014	8345	8676	9007
[illegible]	9338	9669	0̄000	0331	0662	0993	1324	1655	1986	2316
13	1182647	2978	3309	3639	3970	4301	4631	4962	5293	5623
14	5954	6284	6615	6945	7276	7606	7936	8267	8597	8927
15	9258	9588	9918	0̄248	0578	0909	1239	1569	1899	2229
16	1192559	2889	3219	3549	3879	4209	4539	4868	5198	5528
17	5858	6187	6517	6847	7177	7506	7836	8165	8495	8825
18	9154	9484	9813	0̄143	0472	0801	1131	1460	1789	2119
19	1202448	2777	3106	3436	3765	4094	4423	4752	5081	5410
1320	5739	6069	6397	6726	7055	7384	7713	8042	8371	8699
21	9028	9357	9686	0̄014	0343	0672	1000	1329	1657	1986
22	1212315	2643	2972	3300	3628	3957	4285	4614	4942	5270
23	5598	5927	6255	6583	6911	7239	7568	7896	8224	8552
24	8880	9208	9536	9864	0̄192	0520	0848	1175	1503	1831
25	1222159	2487	2814	3142	3470	3797	4125	4453	4780	5108
26	5435	5763	6090	6418	6745	7073	7400	7727	8055	8382
27	8709	9036	9364	9691	0̄018	0345	0672	1000	1327	1654
[illegible]	1231981	2308	2635	2962	3289	3616	3942	4269	4596	4923
29	5250	5577	5903	6230	6557	6883	7210	7537	7863	8190
1330	8516	8843	9169	9496	9822	0̄149	0475	0802	1128	1454
31	1241781	2107	2433	2759	3086	3412	3738	4064	4390	4716
32	5042	5368	5694	6020	6346	6672	6998	7324	7650	7976
33	8301	8627	8953	9279	9605	9930	0̄256	0582	0907	1233
34	1251558	1884	[illegible]	2535	2860	3186	3511	3837	4162	4487
35	4813	5138	5463	5788	6114	6439	6764	7089	7414	7739
36	8065	8390	8715	9040	9365	9690	0̄015	0339	0664	0989
37	1261314	1639	1964	2288	2613	2938	3263	3587	3912	4237
38	4561	4886	5210	5535	5859	6184	6508	6833	7157	7481
[illegible]	7806	8130	8454	8779	9103	9427	9751	0̄076	0400	0724
1340	1271048	1372	1696	2020	2344	2668	2992	3316	3640	3964
41	4288	4612	4935	5259	5583	5907	6230	6554	6878	7202
42	7525	7849	8172	8496	8819	9143	9466	9790	0̄113	0437
43	1280760	1083	1407	1730	2053	2377	2700	3023	3346	3670
44	3993	4316	4639	4962	5285	5608	5931	6254	6577	6900
45	7223	7546	7869	8191	8514	8837	9160	9483	9805	0̄128
46	1290451	0773	1096	1418	1741	2064	2386	2709	3031	3354
47	3676	3998	4321	4643	4965	5288	5610	5932	6255	6577
[illegible]	6899	7221	7543	7865	8187	8510	8832	9154	9476	9798
49	1300119	0441	0763	1085	1407	1729	2051	2372	2694	3016
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Differ.

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2	67	67	66	66	66	66	66	65	65	65	65	65
3	100	100	100	99	99	99	98	98	98	98	97	97
4	134	133	133	132	132	132	131	131	130	130	130	129
5	167	167	166	166	165	165	164	164	163	163	162	162
6	200	200	199	199	198	197	197	196	196	195	194	194
7	234	233	232	232	231	230	230	229	228	228	227	226
8	267	266	266	265	264	263	262	262	261	260	259	258
9	301	300	299	298	297	296	295	294	293	293	292	291

N.	0	1	2	3	4	5	6	7	8	9
1550	1903317	3597	3877	4157	4438	4718	4998	5278	5558	5838
51	6118	6398	6678	6958	7238	7518	7798	8078	8357	8637
52	8917	9197	9477	9757	$\overline{0}$036	0316	0596	0876	1155	1435
53	1911715	1994	2274	2553	2833	3113	3392	3672	3951	4231
54	4510	4790	5069	5348	5628	5907	6187	6466	6745	7025
55	7304	7583	7862	8142	8421	8700	8979	9259	9538	9817
56	1920096	0375	0654	0933	1212	1491	1770	2049	2328	2607
57	2886	3165	3444	3723	4002	4281	4559	4838	5117	5396
58	5675	5953	6232	6511	6789	7068	7347	7625	7904	8183
59	8461	8740	9018	9297	9575	9854	$\overline{0}$132	0411	0689	0968
1560	1931246	1524	1803	2081	2359	2638	2916	3194	3473	3751
[illegible]	4029	4307	4585	4864	5142	5420	5698	5976	6254	6532
62	6810	7088	7366	7644	7922	8200	8478	8756	9034	9312
63	9590	9868	$\overline{0}$145	0423	070	0979	1257	1534	1812	2090
[illegible]	1942367	2645	2923	3200	3478	3756	4033	4311	4588	4866
65	5143	5421	5698	5976	6253	6531	6808	7086	7363	7640
66	7918	8195	8472	8749	9027	9304	9581	9858	$\overline{0}$136	0413
67	1950690	0967	1244	1521	1798	2075	2353	2630	2907	3184
[illegible]	3461	3738	4014	4291	4568	4845	5122	5399	5676	5953
[illegible]	6229	6506	6783	7060	7336	7613	7890	8167	8443	8720
1570	8997	9273	9550	9826	$\overline{0}$103	0379	0656	0932	1209	1485
71	1961762	[illegible]	2315	2591	2867	3144	3420	3697	3973	4249
72	4525	4802	5078	5354	5630	5907	6183	6459	6735	7011
73	7287	7563	7839	8115	8391	8667	8943	9219	9495	9771
74	1970047	0323	0599	0875	1151	1427	1702	1978	2254	2530
75	2806	3081	3357	3633	3908	4184	4460	4735	5011	5287
76	5562	5838	6113	6389	6664	6940	7215	7491	7766	8042
77	8317	8592	8868	9143	9418	9694	9969	$\overline{0}$244	0520	0795
78	1981070	1345	1620	1896	2171	2446	2721	2996	3271	3546
79	3821	4096	4371	4646	4921	5196	5471	5746	6021	6296
1580	6571	6846	7121	7395	7670	7945	8220	8495	8769	9044
81	9319	9593	9868	$\overline{0}$143	0417	0692	0967	1241	1516	1790
82	1992065	2339	2614	2888	3163	3437	3712	3986	4260	4535
83	4809	5083	5358	5632	5906	6181	6455	6729	7003	7278
84	7552	7826	8100	8374	8648	8922	9197	9471	9745	$\overline{0}$019
85	2000293	0567	0841	1115	1389	1662	1936	2210	2484	2758
86	3032	3306	3579	3853	4127	4401	4674	4948	5222	5496
87	5769	6043	6317	6590	6864	7137	7411	7684	7958	8231
88	8505	8778	9052	9325	9599	9872	$\overline{0}$146	0419	0692	0966
89	2011239	1512	1786	2059	2332	2605	2879	3152	3425	3698
1590	3971	4244	4517	4791	5064	5337	5610	5883	6156	6429
91	6702	6975	7248	7521	7794	8066	8339	8612	8885	9158
92	9431	9703	9976	$\overline{0}$249	0522	0794	1067	1340	1612	1885
93	2022158	2430	2703	2976	3248	3521	3793	4066	4338	4611
94	4883	5156	5428	5700	5973	6245	6518	6790	7062	7335
95	7607	7879	8151	8424	[illegible]	8968	9240	9512	9785	$\overline{0}$057
96	2030329	[illegible]	0873	1145	1417	1689	1961	2233	2505	2777
97	3049	3321	3593	3865	4137	4409	4681	4952	5224	5496
98	5768	6040	6311	6583	6855	7126	7398	7670	7941	8213
99	8485	8756	9028	9299	9571	9842	$\overline{0}$114	0385	0657	0928
N.	0	1	2	3	4	5	6	7	8	9

Differ.

	280	279
1	28	28
2	56	56
3	84	84
4	112	112
5	140	140
6	168	167
7	196	195
8	224	223
9	252	251

	278	277
1	28	28
2	56	55
3	83	83
4	111	111
5	139	139
6	167	166
7	195	194
8	222	222
9	250	249

	276	275
1	28	28
2	55	55
3	83	83
4	110	110
5	138	138
6	166	165
7	193	193
8	221	220
9	248	248

	274	273
1	27	27
2	55	55
3	82	82
4	110	109
5	137	137
6	164	164
7	192	191
8	219	218
9	247	246

	272	271
1	27	27
2	54	54
3	82	81
4	109	108
5	136	136
6	163	163
7	190	190
8	218	217
9	245	244

Differ.

N.	0	1	2	3	4	5	6	7	8	9
1400	1461280	1591	1901	2211	2521	2831	3141	3451	3761	4071
01	4381	4691	5001	5311	5621	5931	6241	6551	6861	7170
02	7480	7790	8100	8409	8719	9029	9338	9648	9958	0̄267
03	1470577	0886	1196	1505	1815	2124	2434	2743	3052	3362
04	3671	3980	4290	4599	4908	5217	5527	5836	6145	6454
05	6763	7072	7381	7690	7999	8308	8617	8926	9235	9544
06	9853	0̄162	0471	0780	1089	1397	1706	2015	2324	2632
07	1482941	3250	3558	3867	4175	4484	4793	5101	5410	5718
08	6027	6335	6643	6952	7260	7569	7877	8185	8493	8802
09	9110	9418	9726	0̄035	0343	0651	0959	1267	1575	1883
1410	1492191	2499	2807	3115	3423	3731	4039	4347	4655	4962
11	5270	5578	5886	6193	6501	6809	7116	7424	7732	8039
12	8347	8655	8962	9270	9577	9885	0̄192	0499	0807	1114
13	1501422	1729	2036	2344	2651	2958	3265	3573	3880	4187
14	4494	4801	5108	5415	5722	6030	6337	6644	6951	7257
15	7564	7871	8178	8485	8792	9099	9406	9712	0̄019	0326
16	1510633	0939	1246	1553	1859	2166	2472	2779	3085	3392
17	3699	4005	4311	4618	4924	5231	5537	5843	6150	6456
18	6762	7069	7375	7681	7987	8293	8600	8906	9212	9518
19	9824	0̄130	0436	0742	1048	1354	1660	1966	2272	2578
1420	1522883	3189	3495	3801	4107	4412	4718	5024	5329	5635
21	5941	6246	6552	6858	7163	7469	7774	8080	8385	8691
22	8996	9301	9607	9912	0̄217	0523	0828	1133	1439	1744
23	1532049	2354	2659	2964	3270	3575	3880	4185	4490	4795
24	5100	5405	5710	6015	6320	6625	6929	7234	7539	7844
25	8149	8453	8758	9063	9368	9672	9977	0̄281	0586	0891
26	1541195	1500	1804	2109	2413	2718	3022	3327	3631	3935
27	4240	4544	4848	5153	5457	5761	6065	6370	6674	6978
28	7282	7586	7890	8194	8498	8802	9106	9410	9714	0̄018
29	1550322	0626	0930	1234	1538	1842	2145	2449	2753	3057
1430	3360	3664	3968	4271	4575	4879	5182	5486	5789	6093
31	6396	6700	7003	7307	7610	7914	8217	8520	8824	9127
32	9430	9733	0̄037	0340	0643	0946	1249	1553	1856	2159
33	1562462	2765	3068	3371	3674	3977	4280	4583	4886	5189
34	5492	5794	6097	6400	6703	7006	7308	7611	7914	8216
35	8519	8822	9124	9427	9729	0̄032	0334	0637	0939	1242
36	1571544	1847	2149	2452	2754	3056	3359	3661	3963	4265
37	4568	4870	5172	5474	5776	6079	6381	6683	6985	7287
38	7589	7891	8193	8495	8797	9099	9401	9702	0̄004	0306
39	1580608	0910	1212	1513	1815	2117	2418	2720	3022	3323
1440	3625	3927	4228	4530	4831	5133	5434	5736	6037	6338
41	6640	6941	7243	7544	7845	8146	8448	8749	9050	9351
42	9653	9954	0̄255	0556	0857	1158	1459	1760	2061	2362
43	1592663	2964	3265	3566	3867	4168	4469	4770	5070	5371
44	5672	5973	6273	6574	6875	7175	7476	7777	8077	8378
45	8678	8979	9280	9580	9881	0̄181	0481	0782	1082	1383
46	1601683	1983	2284	2584	2884	3184	3485	3785	4085	4385
47	4685	4985	5286	5586	5886	6186	6486	6786	7086	7386
48	7686	7986	8285	8585	8885	9185	9485	9785	0̄084	0384
49	1610684	0984	1283	1583	1883	2182	2482	2781	3081	3380
N.	0	1	2	3	4	5	6	7	8	9

Differ.

	310	309	308	307	306	305	304	303	302	301	300	299
1	31	31	31	31	31	31	30	30	30	30	30	30
2	62	62	62	61	61	61	61	61	60	60	60	60
3	93	93	92	92	92	92	91	91	91	90	90	90
4	124	124	123	123	122	122	122	121	121	120	120	120
5	155	155	154	154	153	153	152	152	151	151	150	150
6	186	185	185	184	184	183	182	182	181	181	180	179
7	217	216	216	215	214	214	213	212	211	211	210	209
8	248	247	246	246	245	244	243	242	242	241	240	239
9	279	278	277	276	275	275	274	273	272	271	270	269

Differ.

N.	0	1	2	3	4	5	6	7	8	9
1650	2174839	5103	5366	5629	5892	6155	6418	6682	6945	7208
51	7471	7734	7997	8260	8523	8786	9049	9312	9575	9838
52	2180100	0363	0626	0889	1152	1415	1677	1940	2203	2466
53	2729	2991	3254	3517	3779	4042	4305	4567	4830	5092
54	5355	5618	5880	6143	6405	6668	6930	7193	7455	7718
55	7980	8242	8505	8767	9030	9292	9554	9816	0079	0341
56	2190603	0866	1128	1390	1652	1914	2177	2439	2701	2963
57	3225	3487	3749	4011	4273	4535	4797	5059	5321	5583
58	5845	6107	6369	6631	6893	7155	7417	7678	7940	8202
59	8464	8726	8987	9249	9511	9773	0034	0296	0558	0819
1660	2201081	1342	1604	1866	2127	2389	2650	2912	3173	3435
61	3696	3958	4219	4481	4742	5003	5265	5526	5788	6049
62	6310	6571	6833	7094	7355	7617	7878	8139	8400	8661
63	8922	9184	9445	9706	9967	0228	0489	0750	1011	1272
64	2211533	1794	2055	2316	2577	2838	3099	3360	3621	3882
65	4142	4403	4664	4925	5186	5446	5707	5968	6229	6489
66	6750	7011	7271	7532	7793	8053	8314	8574	8835	9095
67	9356	9617	9877	0138	0398	0658	0919	1179	1440	1700
68	2221960	2221	2481	2741	3002	3262	3522	3783	4043	4303
69	4563	4824	5084	5344	5604	5864	6124	6384	6645	6905
1670	7165	7425	7685	7945	8205	8465	8725	8985	9245	9505
71	9764	0024	0284	0544	0804	1064	1324	1583	1843	2103
72	2232363	2622	2882	3142	3402	3661	3921	4181	4440	4700
73	4959	5219	5479	5738	5998	6257	6517	6776	7036	7295
74	7555	7814	8073	8333	8592	8852	9111	9370	9630	9889
75	2240148	0407	0667	0926	1185	1444	1704	1963	2222	2481
76	2740	2999	3258	3517	3777	4036	4295	4554	4813	5072
77	5331	5590	5849	6107	6366	6625	6884	7143	7402	7661
78	7920	8178	8437	8696	8955	9213	9472	9731	9990	0248
79	2250507	0766	1024	1283	1541	1800	2059	2317	2576	2834
1680	3093	3351	3610	3868	4127	4385	4644	4902	5160	5419
81	5677	5935	6194	6452	6710	6969	7227	7485	7743	8002
82	8260	8518	8776	9034	9293	9551	9809	0067	0325	0583
83	2260841	1099	1357	1615	1873	2131	2389	2647	2905	3163
84	3421	3679	3937	4194	4452	4710	4968	5226	5484	5741
85	5999	6257	6515	6772	7030	7288	7545	7803	8060	8318
86	8576	8833	9091	9348	9606	9863	0121	0378	0636	0893
87	2271151	1408	1666	1923	2180	2438	2695	2953	3210	3467
88	3724	3982	4239	4496	4753	5011	5268	5525	5782	6039
89	6296	6554	6811	7068	7325	7582	7839	8096	8353	8610
1690	8867	9124	9381	9638	9895	0152	0409	0666	0922	1179
91	2281436	1693	1950	2206	2463	2720	2977	3233	3490	3747
92	4004	4260	4517	4774	5030	5287	5543	5800	6057	6313
93	6570	6826	7083	7339	7596	7852	8108	8365	8621	8878
94	9134	9390	9647	9903	0159	0416	0672	0928	1185	1441
95	2291697	1953	2209	2466	2722	2978	3234	3490	3746	4002
96	4258	4515	4771	5027	5283	5539	5795	6051	6307	6562
97	6818	7074	7330	7586	7842	8098	8354	8609	8865	9121
98	9377	9633	9888	0144	0400	0656	0911	1167	1423	1678
99	2301934	2189	2445	2701	2956	3212	3467	3723	3978	4234
N.	0	1	2	3	4	5	6	7	8	9

Differ.

	264	263
1	26	26
2	53	53
3	79	79
4	106	105
5	132	132
6	158	158
7	185	184
8	211	210
9	238	237

	262	261
1	26	26
2	52	52
3	79	78
4	105	104
5	131	131
6	157	157
7	183	183
8	210	209
9	236	235

	260	259
1	26	26
2	52	52
3	78	78
4	104	104
5	130	130
6	156	155
7	182	181
8	208	207
9	234	233

	258	257
1	26	26
2	52	51
3	77	77
4	103	103
5	129	129
6	155	154
7	181	180
8	206	206
9	232	231

	256	255
1	26	26
2	51	51
3	77	77
4	102	102
5	128	128
6	154	153
7	179	179
8	205	204
9	230	230

Differ.

N.	0	1	2	3	4	5	6	7	8	9
1500	1760913	1202	1492	1781	2071	2360	2649	2939	3228	3518
01	3807	4096	4386	4675	4964	5253	5543	5832	6121	6410
02	6699	6988	7278	7567	7856	8145	8434	8723	9012	9301
03	9590	9879	$\bar{0}$166	0457	0745	1034	1323	1612	1901	2190
04	1772478	2767	3056	3345	3633	3922	4211	4499	4788	5076
05	5365	5654	5942	6231	6519	6808	7096	7385	7673	7961
06	8250	8538	8826	9115	9403	9691	9980	$\bar{0}$268	0556	0844
07	1781133	1421	1709	1997	2285	2573	2861	3149	3437	3725
[illegible]	4013	4301	4589	4877	5165	5453	5741	6029	6317	6605
09	6892	7180	7468	7756	8043	8331	8619	8907	9194	9482
1510	9769	$\bar{0}$057	0345	0632	0920	1207	1495	1782	2070	2357
11	1792645	2932	3219	3507	3794	4082	4369	4656	4943	5231
12	5518	5805	6092	[illegible]	6667	6954	7241	7528	7815	8102
13	8389	8676	8963	9250	9537	9824	$\bar{0}$111	0398	0685	0972
[illegible]	1801259	1546	1832	2119	2406	2693	2980	3266	3553	3840
15	4126	4413	4700	4986	5273	5559	5846	6133	6419	6706
16	6992	7278	7565	7851	8138	8424	8711	8997	9283	9570
17	9856	$\bar{0}$142	0428	0715	1001	1287	1573	1859	2145	2432
18	1812718	3004	3290	3576	3862	4148	4434	4720	5006	5292
19	5578	5864	6150	6435	6721	7007	7293	7579	7864	8150
1520	8436	8722	9007	9293	9579	9864	$\bar{0}$150	0435	0721	1007
21	1821292	1578	1863	2149	2434	2720	3005	3290	3576	3861
22	4147	4432	4717	5002	5288	5573	5858	6143	6429	6714
23	6999	7284	7569	7854	8140	8425	8710	8995	9280	9565
24	9850	$\bar{0}$135	0420	0704	0989	1274	1559	1844	2129	2414
25	1832698	2983	3268	3553	3837	4122	4407	4691	4976	5261
26	5545	5830	6114	[illegible]	6684	6968	7253	7537	7822	8106
27	8390	8675	8959	9244	9528	9812	$\bar{0}$096	0381	0665	0949
28	1841234	1518	1802	2086	2370	2654	2939	3223	3507	3791
29	4075	4359	4643	4927	5211	5495	5779	6063	6347	6030
1530	6914	7198	7482	7766	8050	8333	8617	8901	9185	9468
31	9752	$\bar{0}$036	0319	0603	0886	1170	1454	1737	2021	2304
32	1852588	2871	3155	3438	3721	4005	4288	4572	4855	5138
33	5422	5705	5988	6271	6555	6838	7121	7404	7687	7970
[illegible]	8254	8537	8820	9103	9386	9669	9952	$\bar{0}$235	0518	0801
35	1861084	1367	1650	1932	2215	2498	2781	3064	3347	3629
36	3912	4195	4478	4760	5043	5326	5608	5891	6174	6456
37	6739	7021	7304	7586	7869	8151	8434	8716	8999	9281
38	9563	9846	$\bar{0}$128	0410	0693	0975	1257	1540	1822	2104
39	1872386	2668	2951	3233	3515	3797	4079	4361	4643	4925
1540	5207	5489	5771	6053	6335	6617	6899	7181	7463	7745
41	8026	8308	8590	8872	9154	9435	9717	9999	$\bar{0}$280	0562
42	1880844	1125	1407	1689	1970	2252	2533	2815	3096	3378
[illegible]	3659	3941	4222	4504	4785	5066	5348	5629	5910	6192
44	6473	6754	7035	7317	7598	7879	8160	8441	8723	9004
45	9285	9566	9847	$\bar{0}$128	[illegible]	0690	0971	1252	1533	1814
46	1892095	2376	2657	[illegible]	3218	3499	3780	4061	4342	4622
47	4903	5184	5465	5745	6026	6307	6587	6868	7148	7429
[illegible]	7710	7990	8271	8551	8832	9112	9393	9673	9953	$\bar{0}$234
[illegible]	1900514	0795	1075	1555	1636	1916	2196	2476	2757	3037
N.	0	1	2	3	4	5	6	7	8	9

Differ.

	290	289
1	29	29
2	58	58
3	87	87
4	116	116
5	145	145
6	174	173
7	203	202
8	232	231
9	261	260

	288	287
1	29	29
2	58	57
3	86	86
4	115	115
5	144	144
6	173	172
7	202	201
8	230	230
9	259	258

	286	285
1	29	28
2	57	57
3	86	86
4	114	114
5	143	143
6	172	171
7	200	200
8	229	228
9	257	257

	284	283
1	28	28
2	57	57
3	85	85
4	114	113
5	142	142
6	170	170
7	199	198
8	227	226
9	256	255

	282	281
1	28	28
2	56	56
3	85	84
4	113	112
5	141	141
6	169	169
7	197	197
8	226	225
9	254	253

Differ.

N.	0	1	2	3	4	5	6	7	8	9	Diff.
1550	1903517	3597	3877	4157	4438	4718	4998	5278	5558	5838	280 279
51	6118	6398	6678	6958	7238	7518	7798	8078	8357	8637	1 28 28
52	8917	9197	9477	9757	$\overline{0}$036	0316	0596	0876	1155	1435	2 56 56
53	1911715	1994	2274	2553	2833	3113	3392	3672	3951	4231	3 84 84
54	4510	4790	5069	5348	5628	5907	6187	6466	6745	7025	4 112 112
											5 140 140
55	7304	7583	7862	8142	8421	8700	8979	9259	9538	9817	6 168 167
56	1920096	0375	0654	0933	1212	1491	1770	2049	2328	2607	7 196 195
57	2886	3165	3444	3723	4002	4281	4559	4838	5117	5396	8 224 223
58	5675	5953	6232	6511	6789	7068	7347	7625	7904	8183	9 252 251
59	8461	8740	9018	9297	9575	9854	$\overline{0}$132	0411	0689	0968	
1560	1931246	1524	1803	2081	2359	2638	2916	3194	3473	3751	278 277
61	4029	4307	4585	4864	5142	5420	5698	5976	6254	6532	1 28 28
62	6810	7088	7366	7644	7922	8200	8478	8756	9034	9312	2 56 55
63	9590	9868	$\overline{0}$145	0423	070	0979	1257	1534	1812	2090	3 83 83
64	1942367	2645	2923	3200	3478	3756	4033	4311	4588	4866	4 111 111
[illegible]	5143	5421	5698	5976	6253	6531	6808	7086	7363	7640	5 139 139
66	7918	8195	8472	8749	9027	9304	9581	9858	$\overline{0}$136	0413	6 167 166
67	1950690	0967	1244	1521	1798	2075	2353	2630	2907	3184	7 195 194
68	3461	3738	4014	4291	4568	4845	5122	5399	5676	5953	8 222 222
69	6229	6506	6783	7060	7336	7613	7890	8167	8443	8720	9 250 249
1570	8997	9273	9550	9826	$\overline{0}$103	0379	0656	0932	1209	1485	
71	1961762	[illegible]	2315	2591	2867	3144	3420	3697	3973	4249	276 275
72	4525	4802	5078	5354	5630	5907	6183	6459	6735	7011	1 28 28
73	7287	7563	7839	8115	8391	8667	8943	9219	9495	9771	2 55 55
74	1970047	0323	0599	0875	1151	1427	1702	1978	2254	2530	3 83 83
											4 110 110
75	2806	3081	3357	3633	3908	4184	4460	4735	5011	5287	5 138 138
76	5562	5838	6113	6389	6664	6940	7215	7491	7766	8042	6 166 165
77	8317	8592	8868	9143	9418	9694	9969	$\overline{0}$244	0520	0795	7 193 193
											8 221 220
78	1981070	1345	1620	1896	2171	2446	2721	2996	3271	3546	9 248 248
79	3821	4096	4371	4646	4921	5196	5471	5746	6021	6296	
1580	6571	6846	7121	7395	7670	7945	8220	8495	8769	9044	
[illegible]	9319	9593	9868	$\overline{0}$143	0417	0692	0967	1241	1516	1790	274 273
82	1992065	2339	2614	2888	3163	3437	3712	3986	4260	4535	1 27 27
[illegible]	4809	5083	5358	5632	5906	6181	6455	6729	7003	7278	2 55 55
84	7552	7826	8100	8374	8648	8922	9197	9471	9745	$\overline{0}$019	3 82 82
											4 110 109
85	2000293	0567	0841	1115	1389	1662	1936	2210	2484	2758	5 137 137
86	3032	3306	3579	3853	4127	4401	4674	4948	5222	5496	6 164 164
87	5769	6043	6317	6590	6864	7137	7411	7684	7958	8231	7 192 191
[illegible]	8505	8778	9052	9325	9599	9872	$\overline{0}$146	0419	0692	0966	8 219 218
89	2011239	1512	1786	2059	2332	2605	2879	3152	3425	3698	9 247 246
1590	3971	4244	4517	4791	5064	5337	5610	5883	6156	6429	
91	6702	6975	7248	7521	7794	8066	8339	8612	8885	9158	
92	9431	9703	9976	$\overline{0}$249	0522	0794	1067	1340	1612	1885	272 271
93	2022158	[illegible]	2703	2976	3248	3521	3793	4066	4338	4611	1 27 27
[illegible]	[illegible]	5156	5428	5700	5973	6245	6518	6790	7062	7335	2 54 54
											3 82 81
95	7607	7879	8151	8424	8696	8968	9240	9512	9785	$\overline{0}$057	4 109 108
96	2030329	0601	0873	1145	1417	1689	1961	2233	2505	2777	5 136 136
97	3049	3321	3593	3865	4137	4409	4681	4952	5224	5496	6 163 163
98	5768	6040	6311	6583	6855	7126	7398	7670	7941	8213	7 190 190
											8 218 217
99	8485	8756	9028	9299	9571	9842	$\overline{0}$114	0385	0657	0928	9 245 244
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01	5137	5378	5619	5860	6102	6343	6584	6825	7066	7307	241	1
02	7548	7789	8030	8271	8512	8753	8994	9235	9475	9716		2
03	9957	0̄198	0439	0680	0921	1161	1402	1643	1884	2125		3 7
04	2562365	2606	2847	3087	3328	3569	3810	4050	4291	4531		4
05	4772	5013	5253	5494	5734	5975	6215	6456	6696	6937		5 12
06	7177	7418	7658	7899	8139	8380	8620	8860	9101	9341		6 14
07	9582	9822	0̄062	0302	0543	0783	1023	1264	1504	1744		7 16
08	2571984	2224	2464	2705	2945	3185	3425	3665	3905	4146		8 19
09	4386	4626	4866	5106	5346	5586	5826	6066	6306	6546	240	9 21
1810	6786	7026	7266	7506	7745	7985	8225	8465	8705	8945		239
11	9185	9424	9664	9904	0̄144	0383	0623	0863	1103	1342		1 24
12	2581582	1822	2061	2301	2541	2780	3020	3259	3499	3738		2 48
13	3978	4218	4457	4697	4936	5176	5415	5655	5894	6133		3 72
14	6373	6612	6852	7091	7330	7570	7809	8048	8288	8527		4 96
15	8766	9006	9245	9484	9723	9963	0̄202	0441	0680	0919		5 120
16	2591158	1398	1637	1876	2115	2354	2593	2832	3071	3310		6 143
17	3549	3788	4027	4266	4505	4744	4983	5222	5461	5700		238
18	5939	6178	6417	6655	6894	7133	7372	7611	7849	8088	239	1 24
19	8327	8566	8804	9043	9282	9521	9759	9998	0̄237	0475		2 48
1820	2600714	0952	1191	1430	1668	1907	2145	2384	2622	2861		4 95
21	3099	3338	3576	3815	4053	4292	4530	4768	5007	5245		5 119
22	5484	5722	5960	6199	6437	6675	6914	7152	7390	7628		6 143
23	7867	8105	8343	8581	8820	9058	9296	9534	9772	0̄010		8 190
24	2610248	0486	0725	0963	1201	1439	1677	1915	2153	2391	238	9 214
25	2629	2867	3105	3343	3580	3818	4056	4294	4532	4770		237
26	5008	5246	5483	5721	5959	6197	6435	6672	6910	7148		1 24
27	7385	7623	7861	8099	8336	8574	8811	9049	9287	9524		2 47
28	9762	9999	0̄237	0475	0712	0950	1187	1425	1662	1900		3 71
29	2622137	2374	2612	2849	3087	3324	3562	3799	4036	4274		4 95
1830	4511	4748	4986	5223	5460	5697	5935	6172	6409	6646		6 142
31	6883	7121	7358	7595	7832	8069	8306	8543	8781	9018		7 166
32	9255	9492	9729	9966	0̄203	0440	0677	0914	1151	1388		9 213
33	2631625	1862	2098	2335	2572	2809	3046	3283	3520	3757	237	236
34	3993	4230	4467	4704	4940	5177	5414	5651	5887	6124		1 24
35	6361	6597	6834	7071	7307	7544	7780	8017	8254	8490		2 47
36	8727	8963	9200	9436	9673	9909	0̄146	[illegible]	0619	0855		3 71
37	2641092	1328	1564	1801	2037	2273	2510	2746	2982	3219		5 118
38	3455	3691	3928	4164	4400	4636	4873	5109	5345	5581		6 142
39	5817	6053	6290	6526	6762	6998	7234	7470	7706	7942	236	7 165
1840	8178	8414	8650	8886	9122	9358	9594	9830	0̄066	0302		8 189
41	2650538	0774	1010	1246	1481	1717	1953	2189	2425	2660		9 212
42	2896	3132	3368	3604	3839	4075	4311	4546	4782	5018		235
43	5253	5489	5725	5960	6196	6431	6667	6903	7138	7374		1 24
44	7609	7845	8080	8316	8551	8787	9022	9257	9493	9728		2 47
45	9964	0̄199	0434	0670	0905	1140	1376	1611	1846	2082		4 94
46	2662317	2552	2787	3023	3258	3493	3728	3963	4199	4434		5 118
47	4669	4904	5139	5374	5609	5844	6080	6315	6550	6785	235	6 141
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49	9369	9604	9839	0̄074	0309	0543	0778	1013	1248	1483		9 212
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51	7471	7734	7997	8260	8523	8786	9049	9312	9575	9838
52	2180100	0363	0626	0889	1152	1415	1677	1940	2203	2466
53	2729	2991	3254	3517	3779	4042	4305	4567	4830	5092
54	5355	5618	5880	6143	6405	6668	6930	7193	7455	7718
55	7980	8242	8505	8767	9030	9292	9554	9816	$\bar{0}$079	0341
56	2190603	0866	1128	1390	1652	1914	2177	2439	2701	2963
57	3225	3487	3749	4011	4273	4535	4797	5059	5321	5583
58	5845	6107	6369	6631	6893	7155	7417	7678	7940	8202
59	8464	8726	8987	9249	9511	9773	$\bar{0}$034	0296	0558	0819
1660	2201081	1342	1604	1866	2127	2389	2650	2912	3173	3435
61	3696	3958	4219	4481	4742	5003	5265	5526	5788	6049
62	6310	6571	6833	7094	7355	7617	7878	8139	8400	8661
63	8922	9184	9445	9706	9967	$\bar{0}$228	0489	0750	1011	1272
64	2211533	1794	2055	2316	2577	2838	3099	3360	3621	3882
65	4142	4403	4664	4925	5186	5446	5707	5968	6229	6489
66	6750	7011	7271	7532	7793	8053	8314	8574	8835	9095
67	9356	9617	9877	$\bar{0}$138	0398	0658	0919	1179	1440	1700
68	2221960	2221	2481	2741	3002	3262	3522	3783	4043	4303
69	4563	4824	5084	5344	5604	5864	6124	6384	6645	6905
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71	9764	$\bar{0}$024	0284	0544	0804	1064	1324	1583	1843	2103
72	2232363	2622	2882	3142	3402	3661	3921	4181	4440	4700
73	4959	5219	5479	5738	5998	6257	6517	6776	7036	7295
74	7555	7814	8073	8333	8592	8852	9111	9370	9630	9889
75	2240148	0407	0667	0926	1185	1444	1704	1963	2222	2481
76	2740	2999	3258	3517	3777	4036	4295	4554	4813	5072
77	5331	5590	5849	6107	6366	6625	6884	7143	7402	7661
78	7920	8178	8437	8696	8955	9213	9472	9731	9990	$\bar{0}$248
79	2250507	0766	1024	1283	1541	1800	2059	2317	2576	2834
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82	8260	8518	8776	9034	9293	9551	9809	$\bar{0}$067	0325	0583
83	2260841	1099	1357	1615	1873	2131	2389	2647	2905	3163
84	3421	3679	3937	4194	4452	4710	4968	5226	5484	5741
85	5999	6257	6515	6772	7030	7288	7545	7803	8060	8318
86	8576	8833	9091	9348	9606	9863	$\bar{0}$121	0378	0636	0893
87	2271151	1408	1666	1923	2180	2438	2695	2953	3210	3467
88	3724	3982	4239	4496	4753	5011	5268	5525	5782	6039
89	6296	6554	6811	7068	7325	7582	7839	8096	8353	8610
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91	2281436	1693	1950	2206	2463	2720	2977	3233	3490	3747
92	4004	4260	4517	4774	5030	5287	5543	5800	6057	6313
93	6570	6826	7083	7339	7596	7852	8108	8365	8621	8878
94	9134	9390	9647	9903	$\bar{0}$159	0416	0672	0928	1185	1441
95	2291697	1953	2209	2466	2722	2978	3234	3490	3746	4002
96	4258	4515	4771	5027	5283	5539	5795	6051	6307	6562
97	6818	7074	7330	7586	7842	8098	8354	8609	8865	9121
98	9377	9633	9888	$\bar{0}$144	0400	0656	0911	1167	1423	1678
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6	158	158
7	185	184
8	211	210
9	238	237

	262	261
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5	131	131
6	157	157
7	183	183
8	210	209
9	236	235

	260	259
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3	78	78
4	104	104
5	130	130
6	156	155
7	182	181
8	208	207
9	234	233

	258	257
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2	52	51
3	77	77
4	103	103
5	129	129
6	155	154
7	181	180
8	206	206
9	232	231

	256	255
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3	77	77
4	102	102
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6	154	153
7	179	179
8	205	204
9	230	230

Differ.

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02	2792105	2333	2562	2790	3018	3247	3475	3703	3931	4160	
03	4388	4616	4844	5072	5301	5529	5757	5985	6213	6441	
04	6669	6898	7126	7354	7582	7810	8038	8266	8494	8722	228
05	8950	9178	9406	9634	9862	0̄090	0317	0545	0773	1001	
06	2801229	1457	1685	1912	2140	2368	2596	2824	3051	3279	
07	3507	3735	3962	4190	4418	4645	4873	5101	5328	5556	
08	5784	6011	6239	6467	6694	6922	7149	7377	7604	7832	
09	8059	8287	8514	8742	8969	9197	9424	9651	9879	0̄106	
1910	2810334	0561	0788	1016	1243	1470	1698	1925	2152	2380	
11	2607	2834	3061	3289	3516	3743	3970	4197	4425	4652	
12	4879	5106	5333	5560	5787	6014	6242	6469	6696	6923	
13	7150	7377	7604	7831	8058	8285	8512	8739	8966	9192	227
14	9419	9646	9873	0̄100	0327	0554	0781	1007	1234	1461	
15	2821688	1915	2141	2368	2595	2822	3048	3275	3502	3729	
16	3955	4182	4408	4635	4862	5088	5315	5541	5768	5995	
17	6221	6448	6674	6901	7127	7354	7580	7807	8033	8260	
18	8486	8712	8939	9165	9392	9618	9844	0̄071	0297	0523	
19	2830750	0976	1202	1429	1655	1881	2107	2334	2560	2786	
1920	3012	3238	3465	3691	3917	4143	4369	4595	4821	5048	226
21	5274	5500	5726	5952	6178	6404	6630	6856	7082	7308	
22	7534	7760	7986	8212	8438	8663	8889	9115	9341	9567	
23	9793	0̄019	0245	0470	0696	0922	1148	1373	1599	1825	
24	2842051	2276	2502	2728	2953	3179	3405	3630	3856	4082	
25	4307	4533	4759	4984	5210	5435	5661	5886	6112	6337	
26	6563	6788	7014	7239	7465	7690	7916	8141	8366	8592	
27	8817	9043	9268	9493	9719	9944	0̄169	0394	0620	0845	
28	2851070	1296	1521	1746	1971	2196	2422	2647	2872	3097	
29	3322	3547	3773	3998	4223	4448	4673	4898	5123	5348	[illegible]
1930	5573	5798	6023	6248	6473	6698	6923	7148	7373	7598	
31	7823	8048	8273	8497	8722	8947	9172	9397	9622	9846	
32	2860071	0296	0521	0746	0970	1195	1420	1644	1869	2094	
33	2319	2543	2768	2993	3217	3442	3666	3891	4116	4340	
34	4565	4789	5014	5238	5463	5687	5912	6136	6361	6585	
35	6810	7034	7259	7483	7707	7932	8156	8381	8605	8829	
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37	2871296	1520	1745	1969	2193	2417	2641	2865	3090	3314	
38	3538	3762	3986	4210	4434	4658	4882	5106	5330	5554	224
39	5778	6002	6226	6450	6674	6898	7122	7346	7570	7793	
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41	2880255	0479	0703	0927	1150	1374	1598	1821	2045	2269	
42	2492	2716	2939	3163	3387	3610	3834	4057	4281	4504	
43	4728	4952	5175	5399	5622	5845	6069	6292	6516	6739	
44	6963	7186	7409	7633	7856	8079	8303	8526	8749	8973	
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46	2891428	1652	1875	2098	2321	2544	2767	2990	3213	3436	
47	3660	3883	4106	4329	4552	4775	4998	5221	5444	5667	
48	5890	6112	6335	6558	6781	7004	7227	7450	7673	7896	
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4	91	91	90	90	90	89
5	114	114	113	113	112	112
6	137	136	136	135	134	134
7	160	159	158	158	157	156
8	182	182	181	180	179	178
9	205	204	203	203	202	201

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2931415	1636	1857	2078	2299	2520	2741	2962	3183	3405	
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5835	6056	6277	6498	6719	6940	7160	7381	7602	7823	
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2457	2678	2898	3119	3339	3560	3780	4001	4221	4442	
4662	4883	5103	5324	5544	5764	5985	6205	6426	6646	
6866	7087	7307	7527	7748	7968	8188	8408	8629	8849	
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8845	9064	9283	9502	9722	9941	0̄160	0379	0598	0817	
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3227	3446	3665	3884	4103	4322	4541	4760	4979	5198	
5417	5636	5854	6073	6292	6511	6730	6949	7168	7386	
7605	7824	8043	8261	8480	8699	8918	9136	9355	9574	
9792	0̄011	0230	0448	0667	0886	1104	1323	1542	1760	
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5073	5291	5509	5727	5945	6162	6380	6598	6816	7034	
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3781	3998	4216	4433	4650	4868	5085	5303	5520	5737	
5955	6172	6390	6607	6824	7042	7259	7476	7693	7911	
8128	8345	8562	8780	8997	9214	9431	9648	9866	0̄083	
0	1	2	3	4	5	6	7	8	9	D

Pro.	222	221	220	219	218
1	22	22	22	22	22
2	44	44	44	44	44
3	67	66	66	66	65
4	89	88	88	88	87
5	111	111	110	110	109
6	133	133	132	131	131
7	155	155	154	153	153
8	178	177	176	175	174
9	200	199	198	197	196
Pts.					

N.	0	1	2	3	4	5	6	7	8	9	D
1800	2552725	2966	3208	3449	3690	3931	4172	4414	4655	4896	
01	5137	5378	5619	5860	6102	6343	6584	6825	7066	7307	241
02	7548	7789	8030	8271	8512	8753	8994	9235	9475	9716	
03	9957	0̄198	0439	0680	0921	1161	1402	1643	1884	2125	
04	2562365	2606	2847	3087	3328	3569	3810	4050	4291	4531	
05	4772	5013	5253	5494	5734	5975	6215	6456	6696	6937	
06	7177	7418	7658	7899	8139	8380	8620	8860	9101	9341	
07	9582	9822	0̄062	0302	0543	0783	1023	1264	1504	1744	
08	2571984	2224	2465	2705	2945	3185	3425	3665	3905	4146	
09	4386	4626	4866	5106	5346	5586	5826	6066	6306	6546	240
1810	6786	7026	7266	7506	7745	7985	8225	8465	8705	8945	
11	9185	9424	9664	9904	0̄144	0383	0623	0863	1103	1342	
12	2581582	1822	2061	2301	2541	2780	3020	3259	3499	3738	
13	3978	4218	4457	4697	4936	5176	5415	5655	5894	6133	
14	6373	6612	6852	7091	7330	7570	7809	8048	8288	8527	
15	8766	9006	9245	9484	9723	9963	0̄202	0441	0680	0919	
16	2591158	1398	1637	1876	2115	2354	2593	2832	3071	3310	
17	3549	3788	4027	4266	4505	4744	4983	5222	5461	5700	
18	5939	6178	6417	6655	6894	7133	7372	7611	7849	8088	239
19	8327	8566	8804	9043	9282	9521	9759	9998	0̄237	0475	
1820	2600714	0952	1191	1430	1668	1907	2145	2384	2622	2861	
21	3099	3338	3576	3815	4053	4292	4530	4769	5007	5245	
22	5484	5722	5960	6199	6437	6675	6914	7152	7390	7628	
23	7867	8105	8343	8581	8820	9058	9296	9534	9772	0̄010	
24	2610248	0486	0725	0963	1201	1439	1677	1915	2153	2391	238
25	2629	2867	3105	3343	3580	3818	4056	4294	4532	4770	
26	5008	5246	5483	5721	5959	6197	6435	6672	6910	7148	
27	7385	7623	7861	8099	8336	8574	8811	9049	9287	9524	
28	9762	9999	0̄237	0475	0712	0950	1187	1425	1662	1900	
29	2622137	2374	2612	2849	3087	3324	3562	3799	4036	4274	
1830	4511	4748	4986	5223	5460	5697	5935	6172	6409	6646	
31	6883	7121	7358	7595	7832	8069	8306	8543	8781	9018	
32	9255	9492	9729	9966	0̄203	0440	0677	0914	1151	1388	
33	2631625	1862	2098	2335	2572	2809	3046	3283	3520	3757	237
34	3993	4230	4467	4704	4940	5177	5414	5651	5887	6124	
35	6361	6597	6834	7071	7307	7544	7780	8017	8254	8490	
36	8727	8963	9200	9436	9673	9909	0̄146	0382	0619	0855	
37	2641092	1328	1564	1801	2037	2273	2510	2746	2982	3219	
38	3455	3691	3928	4164	4400	4636	4873	5109	5345	5581	
39	5817	6053	6290	6526	6762	6998	7234	7470	7706	7942	236
1840	8178	8414	8650	8886	9122	9358	9594	9830	0̄066	0302	
41	2650538	0774	1010	1246	1481	1717	1953	2189	2425	2660	
42	2896	3132	3368	3604	3839	4075	4311	4546	4782	5018	
43	5253	5489	5725	5960	6196	6431	6667	6903	7138	7374	
44	7609	7845	8080	8316	8551	8787	9022	9257	9493	9728	
45	9964	0̄199	0434	0670	0905	1140	1376	1611	1846	2082	
46	2662317	2552	2787	3023	3258	3493	3728	3963	4199	4434	235
47	4669	4904	5139	5374	5609	5844	6080	6315	6550	6785	
48	7020	7255	7490	7725	7960	8195	8429	8664	8899	9134	
49	9369	9604	9839	0̄074	0309	0543	0778	1013	1248	1483	
N.	0	1	2	3	4	5	6	7	8	9	D

Pro.	240	239	238	237	236	235
1	24	24	24	24	24	24
2	48	48	48	47	47	47
3	72	72	71	71	71	71
4	96	96	95	95	94	94
5	120	120	119	119	118	118
6	144	143	143	142	142	141
7	168	167	167	166	165	16
8	192	191	190	190	189	18
9	216	215	214	213	212	21

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2050	3117539	7750	7962	8174	8386	8598	8810	9021	9233	9445		212
51	9657	9868	0̄080	0292	0504	0715	0927	1139	1350	1562		1 21
52	3121774	1985	2197	2408	2620	2832	3043	3255	3466	3678		2 42
53	3889	4101	4313	4524	4736	4947	5159	5370	5581	5793		3 64
54	6004	6216	6427	6639	6850	7061	7273	7484	7696	7907		4 85
55	8118	8330	8541	8752	8964	9175	9386	9597	9809	0̄020		5 106
56	3130231	0442	0654	0865	1076	1287	1498	1709	1921	2132		6 127
57	2343	2554	2765	2976	3187	3398	3610	3821	4032	4243	211	7 148
58	4454	4665	4876	5087	5298	5509	5720	5931	6142	6353		8 170
59	6563	6774	6985	7196	7407	7618	7829	8040	8251	8461		9 191
2060	8672	8883	9094	9305	9515	9726	9937	0̄148	0358	0569		211
61	3140780	0991	1201	1412	1623	1833	2044	2255	2465	2676		1 21
62	2887	3097	3308	3518	3729	3940	4150	4361	4571	4782		2 42
63	4992	5203	5413	5624	5834	6045	6255	6466	6676	6887		3 63
64	7097	7307	7518	7728	7939	8149	8359	8570	8780	8990		4 84
65	9201	9411	9621	9831	0̄042	0252	0462	0672	0883	1093		5 106
66	3151303	1513	1724	1934	2144	2354	2564	2774	2985	3195		6 127
67	3405	3615	3825	4035	4245	4455	4665	4875	5085	5295	210	7 148
68	5505	5715	5925	6135	6345	6555	6765	6975	7185	7395		8 169
69	7605	7815	8025	8235	8444	8654	8864	9074	9284	9494		9 190
2070	9703	9913	0̄123	0333	0543	0752	0962	1172	1382	1591		210
71	3161801	2011	2220	2430	2640	2849	3059	3269	3478	3688		1 21
72	3898	4107	4317	4526	4736	4945	5155	5364	5574	5784		2 42
73	5993	6203	6412	6621	6831	7040	7250	7459	7669	7878		3 63
74	8088	8297	8506	8716	8925	9134	9344	9553	9762	9972		4 84
75	3170181	0390	0600	0809	1018	1227	1437	1646	1855	2064		5 105
76	2273	2483	2692	2901	3110	3319	3528	3738	3947	4156		6 126
77	4365	4574	4783	4992	5201	5410	5619	5828	6037	6246	209	7 147
78	6455	6664	6873	7082	7291	7500	7709	7918	8127	8336		8 168
79	8545	8754	8963	9172	9380	9589	9798	0̄007	0216	0425		9 189
2080	3180633	0842	1051	1260	1468	1677	1886	2095	2303	2512		209
81	2721	2929	3138	3347	3556	3764	3973	4181	4390	4599		1 21
82	4807	5016	5224	5433	5642	5850	6059	6267	6476	6684		2 42
83	6893	7101	7310	7518	7727	7935	8143	8352	8560	8769		3 63
84	8977	9186	9394	9602	9811	0̄019	0227	0436	0644	0852		4 84
85	3191061	1269	1477	1685	1894	2102	2310	2518	2727	2935		5 105
86	3143	3351	3559	3768	3976	4184	4392	4600	4808	5016		6 125
87	5224	5433	5641	5849	6057	6265	6473	6681	6889	7097	208	7 146
88	7305	7513	7721	7929	8137	8345	8553	8761	8969	9176		8 167
89	9384	9592	9800	0̄008	0216	0424	0632	0839	1047	1255		9 188
2090	3201463	1671	1878	2086	2294	2502	2709	2917	3125	3333		208
91	3540	3748	3956	4163	4371	4579	4786	4994	5202	5409		1 21
92	5617	5824	6032	6240	6447	6655	6862	7070	7277	7485		2 42
93	7692	7900	8107	8315	8522	8730	8937	9145	9352	9559		3 62
94	9767	9974	0̄182	0389	0596	0804	1011	1218	1426	1633		4 83
95	3211840	2048	2255	2462	2669	2877	3084	3291	3498	3706		5 104
96	3913	4120	4327	4534	4742	4949	5156	5363	5570	5777		6 125
97	5984	6191	6398	6606	6813	7020	7227	7434	7641	7848	207	7 146
98	8055	8262	8469	8676	8883	9090	9297	9504	9711	9917		8 166
99	3220124	0331	0538	0745	0952	1159	1366	1572	1779	1986		9 187
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1900	2787536	7765	7993	8222	8450	8679	8907	9136	9364	9593	
01	9821	0̄050	0278	0506	0735	0963	1192	1420	1648	1877	
02	2790105	2333	2562	2790	3018	3247	3475	3703	3931	4160	
03	4388	4616	4844	5072	5301	5529	5757	5985	6213	6441	
04	6669	6898	7126	7354	7582	7810	8038	8266	8494	8722	228
05	8950	9178	9406	9634	9862	0̄090	0317	0545	0773	1001	
06	2801229	1457	1685	1912	2140	2368	2596	2824	3051	3279	
07	3507	3735	3962	4190	4418	4645	4873	5101	5328	5556	
08	5784	6011	6239	6467	6694	6922	7149	7377	7604	7832	
09	8059	8287	8514	8742	8969	9197	9424	9651	9879	0̄106	
1910	2810334	0561	0788	1016	1243	1470	1698	1925	2152	2380	
11	2607	2834	3061	3289	3516	3743	3970	4197	4425	4652	
12	4879	5106	5333	5560	5787	6014	6242	6469	6696	6923	227
13	7150	7377	7604	7831	8058	8285	8512	8739	8966	9192	
14	9419	9646	9873	0̄100	0327	0554	0781	1007	1234	1461	
15	2821688	1915	2141	2368	2595	2822	3048	3275	3502	3728	
16	3955	4182	4408	4635	4862	5088	5315	5541	5768	5995	
17	6221	6448	6674	6901	7127	7354	7580	7807	8033	8260	
18	8486	8712	8939	9165	9392	9618	9844	0̄071	0297	0523	
19	2830750	0976	1202	1429	1655	1881	2107	2334	2560	2786	
1920	3012	3238	3465	3691	3917	4143	4369	4595	4821	5048	226
21	5274	5500	5726	5952	6178	6404	6630	6856	7082	7308	
22	7534	7760	7986	8212	8438	8663	8889	9115	9341	9567	
23	9793	0̄019	0245	0470	0696	0922	1148	1373	1599	1825	
24	2842051	2276	2502	2728	2953	3179	3405	3630	3856	4082	
25	4307	4533	4759	4984	5210	5435	5661	5886	6112	6337	
26	6563	6788	7014	7239	7465	7690	7916	8141	8366	8592	
27	8817	9043	9268	9493	9719	9944	0̄169	0394	0620	0845	
28	2851070	1296	1521	1746	1971	2196	2422	2647	2872	3097	
29	3322	3547	3773	3998	4223	4448	4673	4898	5123	5348	225
1930	5573	5798	6023	6248	6473	6698	6923	7148	7373	7598	
31	7823	8048	8273	8497	8722	8947	9172	9397	9622	9846	
32	2860071	0296	0521	0746	0970	1195	1420	1644	1869	2094	
33	2319	2543	2768	2993	3217	3442	3666	3891	4116	4340	
34	4565	4789	5014	5238	5463	5687	5912	6136	6361	6585	
35	6810	7034	7259	7483	7707	7932	8156	8381	8605	8829	
36	9054	9278	9502	9726	9951	0̄175	0399	0624	0848	1072	
37	2871296	1520	1745	1969	2193	2417	2641	2865	3090	3314	
38	3538	3762	3986	4210	4434	4658	4882	5106	5330	5554	224
39	5778	6002	6226	6450	6674	6898	7122	7346	7570	7793	
1940	8017	8241	8465	8689	8913	9136	9360	9584	9808	0̄032	
41	2880255	0479	0703	0927	1150	1374	1598	1821	2045	2269	
42	2492	2716	2939	3163	3387	3610	3834	4057	4281	4504	
43	4728	4952	5175	5399	5622	5845	6069	6292	6516	6739	
44	6963	7186	7409	7633	7856	8079	8303	0526	8749	8973	
45	9196	9419	9643	9866	0̄089	0312	0536	0759	0982	1205	223
46	2891428	1652	1875	2098	2321	2544	2767	2990	3213	3436	
47	3660	3883	4106	4329	4552	4775	4998	5221	5444	5667	
48	5890	6112	6335	6558	6781	7004	7227	7450	7673	7896	
49	8118	8341	8564	8787	9010	9232	9455	9678	9901	0̄123	
N.	0	1	2	3	4	5	6	7	8	9	D

Pro.	228	227	226	225	224	223
1	23	23	23	23	22	22
2	46	45	45	45	45	45
3	68	68	68	68	67	67
4	91	91	90	90	90	89
5	114	114	113	113	112	112
6	137	136	136	135	134	134
7	160	159	158	158	157	156
8	182	182	181	180	179	178
9	205	204	203	203	202	201
Pts.						

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3324385	4587	4789	4991	5193	5394	5596	5798	6000	6202	202	
6404	6606	6808	7010	7212	7414	7615	7817	8019	8221		
8423	8624	8826	9028	9230	9432	9633	9835	0̄037	0239		202
3330440	0642	0844	1045	1247	1449	1650	1852	2054	2255		1 20
2457	2659	2860	3062	3263	3465	3667	3868	4070	4271		2 40 3 61
4473	4674	4876	5077	5279	5480	5682	5883	6085	6286		4 81
6488	6689	6890	7092	7293	7495	7696	7897	8099	8300		5 101
8501	8703	8904	9105	9307	9508	9709	9911	0̄112	0313		6 121
3340514	0716	0917	1118	1319	1521	1722	1923	2124	2325		7 141 8 162
2526	2728	2929	3130	3331	3532	3733	3934	4135	4336		9 182
4538	4739	4940	5141	5342	5543	5744	5945	6146	6347	201	
6548	6749	6950	7151	7351	7552	7753	7954	8155	8356		
8557	8758	8959	9159	9360	9561	9762	9963	0̄164	0364		201
3350565	0766	0967	1168	1368	1569	1770	1970	2171	2372		1 20
2573	2773	2974	3175	3375	3576	3777	3977	4178	4378		2 40
4579	4780	4980	5181	5381	5582	5782	5983	6183	6384		3 60 4 80
6585	6785	6986	7186	7386	7587	7787	7988	8188	8389		5 101
8589	8790	8990	9190	9391	9591	9791	9992	0̄192	0392		6 121
3360593	0793	0993	1194	1394	1594	1795	1995	2195	2395		7 141
2596	2796	2996	3196	3396	3597	3797	3997	4197	4397		8 161 9 181
4597	4797	4998	5198	5398	5598	5798	5998	6198	6398		
6598	6798	6998	7198	7398	7598	7798	7998	8198	8398	200	
8598	8798	8998	9198	9398	9598	9798	9998	0̄198	0397		200
3370597	0797	0997	1197	1397	1596	1796	1996	2196	2396		1 20
2595	2795	2995	3195	3394	3594	3794	3994	4193	4393		2 40 3 60
4593	4792	4992	5192	5391	5591	5791	5990	6190	6389		4 80
6589	6788	6988	7188	7387	7587	7786	7986	8185	8385		5 100
8584	8784	8983	9183	9382	9582	9781	9981	0̄180	0379		6 120
3380579	0778	0978	1177	1376	1576	1775	1974	2174	2373		7 140
2572	2772	2971	3170	3369	3569	3768	3967	4166	4366		8 160 9 180
4565	4764	4963	5163	5362	5561	5760	5959	6158	6358		
6557	6756	6955	7154	7353	7552	7751	7950	8149	8348	199	
8547	8746	8946	9145	9344	9543	9742	9940	0̄139	0338		199
3390537	0736	0935	1134	1333	1532	1731	1930	2129	2327		1 20
2526	2725	2924	3123	3322	3520	3719	3918	4117	4316		2 40 3 60
4514	4713	4912	5111	5309	5508	5707	5906	6104	6303		4 80
6502	6700	6899	7098	7296	7495	7693	7892	8091	8289		5 100
8488	8686	8885	9084	9282	9481	9679	9878	0̄076	0275		6 119
3400473	0672	0870	1069	1267	1466	1664	1862	2061	2259		7 139
2458	2656	2854	3053	3251	3449	3648	3846	4045	4243		8 159 9 179
4441	4639	4838	5036	5234	5433	5631	5829	6027	6226		
6424	6622	6820	7018	7217	7415	7613	7811	8009	8207		
8405	8604	8802	9000	9198	9396	9594	9792	9990	0̄188		198
3410386	0584	0782	0980	1178	1376	1574	1772	1970	2168	198	1 20
2366	2564	2762	2960	3158	3356	3554	3752	3950	4147		2 40 3 59
4345	4543	4741	4939	5137	5334	5532	5730	5928	6126		4 79
6323	6521	6719	6917	7114	7312	7510	7708	7905	8103		5 99
8301	8498	8696	8894	9091	9289	9486	9684	9682	0̄079		6 119
3420277	0474	0672	0870	1067	1265	1462	1660	1857	2055		7 139 8 158
2252	2450	2647	2845	3042	3240	3437	3635	3832	4029		9 178
0	1	2	3	4	5	6	7	8	9	D	Pts.

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2000	3010300	0517	0734	0951	1168	1386	1603	1820	2037	2254		
01	2471	2688	2905	3122	3339	3556	3773	3990	4207	4424	217	217
02	4641	4858	5075	5291	5508	5725	5942	6159	6376	6593		1 22
03	6809	7026	7243	7460	7677	7893	8110	8327	8544	8760		2 43
04	8977	9194	9411	9627	9844	0̄061	0277	0494	0711	0927		3 65 4 87
05	3021144	1360	1577	1794	2010	2227	2443	2660	2876	3093		5 109
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19	3461573	1769	1964	[illegible]	2356	2551	2747	2943	3138	3334	
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21	5486	5681	5877	6072	6268	6463	6659	6854	7050	7245	
22	7441	7636	7831	8027	8222	8418	8613	[illegible]	9004	9199	
23	9395	9590	9785	9981	0̄176	0371	0567	0762	0957	1153	
24	3471348	1543	1738	1934	2129	2324	2519	2715	2910	3105	
25	[illegible]	3495	3691	3886	4081	4276	4471	4666	4861	5056	
26	5252	5447	5642	5837	6032	6227	6422	6617	6812	7007	195
27	7202	7397	7592	7787	7982	8177	8372	8567	8762	8957	
28	9152	9347	9542	9737	9931	0̄126	0321	0516	0711	0906	
[illegible]	3481101	1296	1490	1685	1880	2075	2270	2464	2659	2854	
2230	3049	3243	3438	[illegible]	3828	4022	4217	4412	4606	4801	
31	4996	5190	5385	5580	5774	5969	6164	6358	6553	6747	
32	6942	7136	7331	7526	7720	7915	8109	8304	8498	8693	
[illegible]	8887	9082	9276	9471	9665	9860	0̄054	0248	0443	0637	
34	3490832	1026	1220	1415	1609	1804	1998	2192	2387	2581	
35	2775	2970	3164	3358	3552	3747	3941	4135	4330	4524	
36	4718	4912	5106	5301	5495	5689	5883	6077	6272	6466	
37	6660	6854	7048	7242	7436	7630	7825	8019	8213	8407	
38	8601	8795	8989	9183	9377	9571	9765	9959	0̄153	0347	194
39	3500541	0735	0929	1123	1317	1511	1705	1898	2092	2286	
2240	2480	2674	2868	3062	3256	3449	3643	3837	4031	4225	
41	4419	4612	4806	5000	5194	5387	5581	5775	5969	6162	
42	6356	6550	6743	6937	7131	7325	7518	7712	7905	8099	
[illegible]	[illegible]	8486	8680	8874	9067	9261	9454	9648	9841	0̄035	
44	3510229	0422	0616	0809	1003	1196	1390	1583	1777	1970	
45	2163	2357	2550	2744	2937	3131	3324	3517	3711	3904	
46	4098	4291	4484	4678	4871	5064	5258	5451	5644	5837	
47	6031	6224	6417	6611	6804	6997	7190	7383	7577	7770	
48	7963	8156	8349	8543	8736	8929	9122	9315	9508	9701	
49	9895	0̄088	0281	0474	0667	0860	1053	1246	1439	1632	193
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2	40	39	39	[illegible]	39
3	59	59	59	59	58
4	79	79	78	78	78
5	99	99	98	98	97
6	119	118	118	117	116
7	139	138	137	137	136
8	158	158	157	156	155
9	178	177	176	176	175

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2250	3521825	2018	2211	2404	2597	2790	2983	3176	3369	3562	193	
51	3755	3948	4141	4334	4527	4720	4912	5105	5298	5491		
52	5684	5877	6070	6262	6455	6648	6841	7034	7226	7419		193
53	7612	7805	7997	8190	8383	8576	8768	8961	9154	9346		1 19
54	9539	9732	9924	$\bar{0}117$	0310	0502	0695	0888	1080	1273		2 39 3 58
55	3531465	1658	1851	2043	2236	2428	2621	2813	3006	3198		4 77
56	3391	3583	3776	3968	4161	4353	4546	4738	4931	5123		5 97 6 116
57	5316	5508	5700	5893	6085	6278	6470	6662	6855	7047		7 135
58	7239	7432	7624	7816	8009	8201	8393	8586	8778	8970		8 154
59	9162	9355	9547	9739	9931	$\bar{0}123$	0316	0508	0700	0892		9 174
2260	3541084	1277	1469	1661	1853	2045	2237	2429	2621	2814		
61	3006	3198	3390	3582	3774	3966	4158	4350	4542	4734	192	
62	4926	5118	5310	5502	5694	5886	6078	6270	6462	6654		192
63	6846	7037	7229	7421	7613	7805	7997	8189	8381	8572		1 19 2 38
64	8764	8956	9148	9340	9531	9723	9915	$\bar{0}107$	0299	0490		3 58
65	3550682	0874	1066	1257	1449	1641	1832	2024	2216	2407		4 77 5 96
66	2599	2791	2982	3174	3366	3557	3749	3940	4132	4324		6 115
67	4515	4707	4898	5090	5281	5473	5664	5856	6048	6239		7 134
68	6431	6622	6813	7005	7196	7388	7579	7771	7962	8154		8 154
69	8345	8536	8728	8919	9111	9302	9493	9685	9876	$\bar{0}067$		9 173
2270	3560259	0450	0641	0832	1024	1215	1406	1598	1789	1980		
71	2171	2363	2554	2745	2936	3127	3319	3510	3701	3892		
72	4083	4274	4466	4657	4848	5039	5230	5421	5612	5803		191
73	5994	6185	6376	6568	6759	6950	7141	7332	7523	7714	191	1 19 2 38
74	7905	8096	8287	8478	8668	8859	9050	9241	9432	9623		3 57
75	9814	$\bar{0}005$	0196	0387	0578	0768	0959	1150	1341	1532		4 76
76	3571723	1913	2104	2295	2486	2677	2867	3058	3249	3440		5 96
77	3630	3821	4012	4202	4393	4584	4775	4965	5156	5347		6 115 7 134
78	5537	5728	5918	6109	6300	6490	6681	6872	7062	7253		8 153
79	7443	7634	7824	8015	8205	8396	8586	8777	8967	9158		9 172
2280	9348	9539	9729	9920	$\bar{0}110$	0301	0491	0682	0872	1062		
81	3581253	1443	1634	1824	2014	2205	2395	2585	2776	2966		
82	3156	3347	3537	3727	3918	4108	4298	4188	4679	4869		190
83	5059	5249	5440	5630	5820	6010	6200	6391	6581	6771		1 19
84	6961	7151	7341	7531	7722	7912	8102	8292	8482	8672	190	2 38 3 57
85	8862	9052	9242	9432	9622	9812	$\bar{0}002$	0192	0382	0572		4 76
86	3590762	0952	1142	1332	1522	1712	1902	2092	2282	2472		5 95
87	2662	2852	3041	3231	3421	3611	3801	3991	4181	4370		6 114 7 133
88	4560	4750	4940	5130	5319	5509	5699	5889	6078	6268		8 152
89	6458	6648	6837	7027	7217	7406	7596	7786	7976	8165		9 171
2290	8355	8544	8734	8924	9113	9303	9493	9682	9872	$\bar{0}061$		
91	3600251	0440	0630	0820	1009	1199	1388	1578	1767	1957		
92	2146	2336	2525	2715	2904	3093	3283	3472	3662	3851		189
93	4041	4230	4419	4609	4798	4987	5177	5366	5555	5745		1 19
94	5934	6123	6313	6502	6691	6881	7070	7259	7448	7638		2 38 3 57
95	7827	8016	8205	8395	8584	8773	8962	9151	9341	9530	189	4 76
96	9719	9908	$\bar{0}097$	0286	0475	0664	0854	1043	1232	1421		5 95
97	3611610	1799	1988	2177	2366	2555	2744	2933	3122	3311		6 113
98	3500	3689	3878	4067	4256	4445	4634	4823	5012	5201		7 132 8 151
99	5390	5579	5768	5956	6145	6334	6523	6712	6901	7090		9 170
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01	9166	9355	9544	9732	9921	$\bar{0}$110	0298	0487	0676	0865		
02	3621053	1242	1430	1619	1808	1996	2185	2374	2562	2751		189
03	2939	3128	3317	3505	3694	3882	4071	4259	4448	4636		1 19
04	4825	5013	5202	5390	5579	5767	5956	6144	6332	6521		2 38
05	6709	6898	7086	7275	7463	7651	7840	8028	8216	8405		3 57 4 76
06	8593	8781	8970	9158	9346	9535	9723	9911	$\bar{0}$099	0288		5 95
07	3630476	0664	0852	1041	1229	1417	1605	1794	1982	2170		6 113
08	2358	2546	2734	2923	3111	3299	3487	3675	3863	4051		7 132
09	4239	4427	4615	4804	4992	5180	5368	5556	5744	5932	188	8 151 9 170
2310	6120	6308	6496	6684	6872	7060	7248	7436	7624	7812		
11	7999	8187	8375	8563	8751	8939	9127	9315	9503	9690		
12	9878	$\bar{0}$066	0254	0442	0630	0817	1005	1193	1381	1569		188
13	3641756	1944	2132	2320	2507	2695	2883	3070	3258	3446		1 19
14	3634	3821	4009	4197	4384	4572	4759	4947	5135	5322		2 38
15	5510	5698	5885	6073	6260	6448	6635	6823	7010	7198		3 56 4 75
16	7386	7573	7761	7948	8136	8323	8511	8698	8885	9073		5 94
17	9260	9448	9635	9823	$\bar{0}$010	0197	0385	0572	0760	0947		6 113
18	3651134	1322	1509	1696	1884	2071	2258	2446	2633	2820		7 132 8 150
19	3007	3195	3382	3569	3757	3944	4131	4318	4505	4693		9 169
2320	4880	5067	5254	5441	5629	5816	6003	6190	6377	6564		
21	6751	6939	7126	7313	7500	7687	7874	8061	8248	8435		
22	8622	8809	8996	9183	9370	9557	9744	9931	$\bar{0}$118	0305	187	187
23	3660492	0679	0866	1053	1240	1427	1614	1801	1987	2174		1 19
24	2361	2548	2735	2922	3109	3296	3482	3669	3856	4043		2 37 3 56
25	4230	4416	4603	4790	4977	5163	5350	5537	5724	5910		4 75
26	6097	6284	6471	6657	6844	7031	7217	7404	7591	7777		5 94
27	7964	8150	8337	8524	8710	8897	9083	9270	9457	9643		6 112 7 131
28	9830	$\bar{0}$016	0203	0389	0576	0762	0949	1135	1322	1508		8 150
29	3671695	1881	2068	2254	2441	2627	2814	3000	3186	3373		9 168
2330	3559	3746	3932	4118	4305	4491	4677	4864	5050	5236		
31	5423	5609	5795	5982	6168	6354	6540	6727	6913	7099		
32	7285	7472	7658	7844	8030	8217	8403	8589	8775	8961		186
33	9147	9334	9520	9706	9892	$\bar{0}$078	0264	0450	0636	0822		1 19
34	3681009	1195	1381	1567	1753	1939	2125	2311	2497	2683	186	2 37 3 56
35	2869	3055	3241	3427	3613	3799	3985	4171	4357	4542		4 74
36	4728	4914	5100	5286	5472	5658	5844	6030	6215	6401		5 93
37	6587	6773	6959	7145	7330	7516	7702	7888	8074	8259		6 112 7 130
38	8445	8631	8817	9002	9188	9374	9559	9745	9931	$\bar{0}$117		8 149
39	3690302	0488	0674	0859	1045	1230	1416	1602	1787	1973		9 167
2340	2159	2344	2530	2715	2901	3086	3272	3458	3643	3829		
41	4014	4200	4385	4571	4756	4942	5127	5313	5498	5683		
42	5869	6054	6240	6425	6611	6796	6981	7167	7352	7538		185
43	7723	7908	8094	8279	8464	8650	8835	9020	9205	9391		1 19
44	9576	9761	9947	$\bar{0}$132	0317	0502	0688	0873	1058	1243		2 37 3 56
45	3701428	1614	1799	1984	2169	2354	2540	2725	2910	3095		4 74
46	3280	3465	3650	3835	4020	4206	4391	4576	4761	4946		5 93
47	5131	5316	5501	5686	5871	6056	6241	6426	6611	6796	185	6 111 7 130
48	6981	7166	7351	7536	7721	7906	8091	8275	8460	8645		8 148
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8807	8977	9147	9317	9487	9658	9828	9998	0̄168	0338		1 17
4070508	0678	0848	1018	1189	1359	1529	1699	1869	[illegible]		2 34
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3909	4079	4249	4419	4589	4759	4929	5099	5269	5439		4 68
5608	5778	5948	6118	6288	6458	6628	6798	6968	7137		5 85
7307	7477	7647	7817	7987	8156	8326	8496	8666	8836		6 102
9005	9175	9345	9515	9684	9854	0̄024	0194	0363	0533		7 119
4080703	0873	1042	1212	1382	1551	1721	1891	[illegible]	2230		8 136
2400	2569	2739	2909	3078	3248	3417	3587	3757	3926		9 153
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5791	5961	6130	6300	6469	6639	6808	6978	7147	7317		
7486	7656	7825	7994	8164	8333	8503	8672	8841	9011		
9180	9350	9519	9688	9858	0̄027	0196	0366	0535	0704		169
4090874	1043	1212	1382	1551	1720	1889	2059	2228	2397		1 17
2567	2736	2905	3074	3243	3413	3582	3751	3920	4089		2 34
4259	4428	4597	4766	4935	5105	5274	5443	5612	5781		3 51
5950	6119	6288	6458	6627	6796	6965	7134	7303	7472	169	4 68
7641	7810	7979	8148	8317	8486	8655	8824	8993	9162		5 85
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4101021	1190	1359	1527	1696	1865	2034	2203	2372	2541		7 118
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4398	4567	4735	4904	5073	5242	5410	5579	5748	5917		9 152
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4513	4682	4850	5019	5187	5355	5524	5692	5860	6029		1 17
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7880	8048	8217	8385	8553	8721	8890	9058	9226	9394		3 50
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2925	3093	3261	3429	3597	3765	3933	4101	4269	4437		6 101
4605	4773	4941	5109	5277	5445	5613	5781	5949	6117		7 118
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7964	8132	8300	8468	8636	8804	8971	9139	9307	9475		9 151
9643	9811	9978	0̄146	0314	0482	0649	0817	0985	1153		
4131321	1488	1656	1824	1991	2159	2327	2495	2662	2830		
2998	3165	3333	3501	3668	3836	4004	4171	4339	4507		167
4674	4842	5009	5177	5345	5512	5680	5847	6015	6182		1 17
6350	6518	6685	6853	7020	7188	7355	7523	7690	7858		2 33
8025	8193	8360	8528	8695	8863	9030	9197	9365	9532		3 50
9700	9867	0̄035	0202	0369	0537	0704	0872	1039	1206		4 67
4141374	1541	1708	1876	2043	2210	2378	2545	2712	2880		5 84
3047	3214	3381	3549	3716	3883	4051	4218	4385	4552		6 100
4719	4887	5054	5221	5388	5556	5723	5890	6057	6224		7 117
6391	6559	6726	6893	7060	7227	7394	7561	7729	7896		8 134
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01	3922	4102	4283	4464	4645	4826	5007	5188	5368	5549	
02	5730	5911	6092	6272	6453	6634	6815	6995	7176	7357	
03	7538	7718	7899	8080	8261	8441	8622	8803	8983	9164	
04	9345	9525	9706	9887	0̄067	0248	0428	0609	0790	0970	
05	3811151	1331	1512	1693	1873	2054	2234	2415	2595	2776	
06	2956	3137	3317	3498	3678	3859	4039	4220	4400	4580	
07	4761	4941	5122	5302	5483	5663	5843	6024	6204	6384	
08	6565	6745	6926	7106	7286	7467	7647	7827	8007	8188	
09	8368	8548	8729	8909	9089	9269	9450	9630	9810	9990	
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12	3773	3953	4133	4313	4493	4673	4853	5033	5213	5393	
13	5573	5753	5933	6113	6293	6473	6653	6833	7013	7193	
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15	9171	9351	9531	9711	9891	0̄070	0250	0430	0610	0790	
16	3830960	1149	1329	1509	1688	1868	2048	2227	2407	2587	
17	2767	2946	3126	3306	3485	3665	3844	4024	4204	4383	
18	4563	4743	4922	5102	5281	5461	5640	5820	6000	6179	
19	6359	6538	6718	6897	7077	7256	7436	7615	7795	7974	
2420	8154	8333	8513	8692	8871	9051	9230	9410	9589	9769	
21	9948	0̄127	0307	0486	0665	0845	1024	1203	1383	1562	
22	3841741	1921	2100	2279	2459	2638	2817	2996	3176	3355	
23	3534	3713	3893	4072	4251	4430	4609	4789	4968	5147	
24	5326	5505	5684	5864	6043	6222	6401	6580	6759	6938	
25	7117	7297	7476	7655	7834	8013	8192	8371	8550	8729	
26	8908	9087	9266	9445	9624	9803	9982	0̄161	0340	0519	179
27	3850698	0877	1056	1235	1413	1592	1771	1950	2129	2308	
28	2487	2666	2845	3023	3202	3381	3560	3739	3918	4096	
29	4275	4454	4633	4812	4990	5169	5348	5527	5705	5884	
2430	. 6063	6241	6420	6599	6778	6956	7135	7314	7492	7671	
31	7850	8028	8207	8386	8564	8743	8921	9100	9279	9457	
32	9636	9814	9993	0̄171	0350	0528	0707	0886	1064	1243	
33	3861421	1600	1778	1957	2135	2314	2492	2670	2849	3027	
34	3206	3384	3563	3741	3919	4098	4276	4455	4633	4811	
35	4990	5168	5346	5525	5703	5881	6060	6238	6416	6595	
36	6773	6951	7129	7308	7486	7664	7842	8021	8199	8377	
37	8555	8733	8912	9090	9268	9446	9624	9803	9981	0̄159	
38	3870337	0515	0693	0871	1049	1228	1406	1584	1762	1940	178
39	2118	2296	2474	2652	2830	3008	3186	3364	3542	3720	
2440	3898	4076	4254	4432	4610	4788	4966	5144	5322	5500	
41	5678	5856	6034	6212	6389	6567	6745	6923	7101	7279	
42	7457	7634	7812	7990	8168	8346	8524	8701	8879	9057	
43	9235	9412	9590	9768	9946	0̄123	0301	0479	0657	0834	
44	3881012	1190	1367	1545	1723	1900	2078	2256	2433	2611	
45	2789	2966	3144	3321	3499	3677	3854	4032	4209	4387	
46	4565	4742	4920	5097	5275	5452	5630	5807	5985	6162	
47	6340	6517	6695	6872	7050	7227	7404	7582	7759	7937	
48	8114	8292	8469	8646	8824	9001	9178	9356	9533	9711	
49	9838	0̄065	0243	0420	0597	0774	0952	1129	1306	1484	
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Pro. Pts.

	181	180	179	178
1	18	18	18	18
2	36	36	36	36
3	54	54	54	53
4	72	72	72	71
5	91	90	90	89
6	109	108	107	107
7	127	126	125	125
8	145	144	143	142
9	163	162	161	160

0	1	2	3	4	5	6	7	8	9	D	Pro.
232459	2623	2786	2950	3114	3278	3442	3606	3770	3933		
4097	4261	4425	4589	4753	4916	5080	5244	5408	5571		163
5735	5899	6063	6226	6390	6554	6718	6881	7045	7209		1 16
7372	7536	7700	7864	8027	8191	8355	8518	8682	8846		2 33
9009	9173	9336	9500	9664	9827	9991	0̄154	0318	0482		3 49 4 65
240645	0809	0972	1136	1300	1463	1627	1790	1954	2117		5 82
2281	2444	2608	2771	2935	3098	3262	3425	3589	3752		6 98
3916	4079	4242	4406	4569	4733	4896	5060	5223	5386		7 114 8 130
5550	5713	5877	6040	6203	6367	6530	6693	6857	7020		9 147
7183	7347	7510	7673	7837	8000	8163	8327	8490	8653		
8816	8980	9143	9306	9469	9633	9796	9959	0̄122	0286		
250449	0612	0775	0938	1102	1265	1428	1591	1754	1917		
2081	2244	2407	2570	2733	2896	3059	3222	3385	3549		
3712	3875	4038	4201	4364	4527	4690	4853	5016	5179		
5342	5505	5668	5831	5994	6157	6320	6483	6646	6809	163	
6972	7135	7298	7461	7624	7787	7950	8113	8276	8439		
8601	8764	8927	9090	9253	9416	9579	9742	9904	0̄067		
260230	0393	0556	0719	0881	1044	1207	1370	1533	1695		
1858	2021	2184	2347	2509	2672	2835	2998	3160	3323		
3486	3648	3811	3974	4137	4299	4462	4625	4787	4950		
5113	5275	5438	5601	5763	5926	6088	6251	6414	6576		
6739	6901	7064	7227	7389	7552	7714	7877	8039	8202		162
8365	8527	8690	8852	9015	9177	9340	9502	9665	9827		1 16
9990	0̄152	0315	0477	0639	0802	0964	1127	1289	1452		2 32
271614	1776	1939	2101	2264	2426	2588	2751	2913	3076		3 49
3238	3400	3563	3725	3887	4050	4212	4374	4536	4699		4 65 5 81
4861	5023	5186	5348	5510	5672	5835	5997	6159	6321		6 97
6484	6646	6808	6970	7133	7295	7457	7619	7781	7944		7 113
8106	8268	8430	8592	8754	8917	9079	9241	9403	9565		8 130 9 146
9727	9889	0̄051	0213	0376	0538	0700	0862	1024	1186		
281348	1510	1672	1834	1996	2158	2320	2482	2644	2806	162	
2968	3130	3292	3454	3616	3778	3940	4102	4264	4426		
4588	4750	4912	5073	5235	5397	5559	5721	5883	6045		
6207	6369	6530	6692	6854	7016	7178	7340	7501	7663		
7825	7987	8149	8311	8472	8634	8796	8958	9119	9281		
9443	9605	9766	9928	0̄090	0252	0413	0575	0737	0898		
291060	1222	1383	1545	1707	1868	2030	2192	2353	2515		
2677	2838	3000	3162	3323	3485	3646	3808	3969	4131		
4293	4454	4616	4777	4939	5100	5262	5423	5585	5747		
5908	6070	6231	6393	6554	6715	6877	7038	7200	7361		
7523	7684	7846	8007	8169	8330	8491	8653	8814	8976		
9137	9298	9460	9621	9782	9944	0̄105	0267	0428	0589		
300751	0912	1073	1235	1396	1557	1718	1880	2041	2202		161
2364	2525	2686	2847	3009	3170	3331	3492	3653	3815		1 16 2 32
3976	4137	4298	4460	4621	4782	4943	5104	5265	5427		3 48
5588	5749	5910	6071	6232	6393	6554	6716	6877	7038	161	4 64
7199	7360	7521	7682	7843	8004	8165	8326	8487	8648		5 81 6 97
8809	8970	9132	9293	9454	9615	9776	9937	0̄098	0258		7 113
310419	0580	0741	0902	1063	1224	1385	1546	1707	1868		8 129
2029	2190	2351	2512	2672	2833	2994	3155	3316	3477		9 145
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2500	3979400	9574	9748	9921	$\bar{0}095$	0269	0442	0616	0790	[illegible]		
01	3981137	1311	1484	1658	1831	2005	2179	[illegible]	2526	2699		174
[illegible]	2873	3047	3220	3394	[illegible]	3741	3914	4088	4261	4435		1 17
03	4608	4782	[illegible]	5129	5302	5476	5649	[illegible]	5996	6170		2 35
04	6343	6517	6690	[illegible]	7037	7210	7384	7557	7731	7904		3 52 4 70
05	8077	8251	8424	8597	8771	8944	9117	9291	9464	9637		5 87
06	9811	[illegible]	$\bar{0}157$	0331	0504	0677	0850	1024	1197	1370		6 104
07	3991543	1717	1890	[illegible]	2236	2409	2583	2756	2929	3102		7 122
[illegible]	3275	3448	[illegible]	3795	[illegible]	4141	4314	4487	4660	4834		8 139 9 157
09	5007	5180	5353	5526	5699	5872	6045	6218	6391	6564	173	
2510	6737	6910	7083	7256	7429	[illegible]	7775	7948	8121	[illegible]		
11	8467	8640	8813	8986	9159	[illegible]	9505	9678	9851	$\bar{0}023$		
12	4000196	0369	0542	0715	0888	1061	1234	1406	1579	1752		
13	1925	[illegible]	2271	2443	2616	2789	2962	3134	3307	3480		
14	3653	3825	3998	4171	4344	4516	4689	[illegible]	5035	5207		
15	5380	5553	5725	5898	6071	6243	6416	6588	6761	6934		173
16	7106	7279	7452	7624	7797	7969	8142	8314	8487	[illegible]		1 17 2 35
17	8832	9005	9177	9350	9522	9695	9867	$\bar{0}040$	0212	0385		3 52
[illegible]	4010557	0730	0902	1075	1247	1420	1592	1764	1937	2109		4 69
19	2282	2454	2626	2799	2971	3144	3316	[illegible]	3661	3833		5 87 6 104
2520	4005	4178	4350	4522	4695	4867	5039	5212	5384	5556		7 121
21	5728	5901	6073	6245	6417	6590	6762	6934	7106	7279		8 138
22	7451	7623	7795	7967	8140	8312	8484	8656	8828	9000		9 156
23	9173	9345	9517	[illegible]	9861	$\bar{0}033$	0205	0377	0549	0721		
24	4020894	1066	1238	1410	1582	1754	1926	2098	2270	2442	172	
25	2614	2786	2958	3130	3302	3474	3646	3818	3990	4162		
26	[illegible]	4505	4677	4849	5021	5193	5365	5537	5709	5881		
27	6052	6224	6396	6568	6740	6912	7083	7255	7427	7599		
28	7771	7942	8114	8286	8458	8630	8801	8973	9145	9317		172
29	9488	9660	9832	$\bar{0}003$	0175	0347	0519	0690	0862	1034		1 17
2530	4031205	1377	1549	1720	1892	[illegible]	2235	2407	2578	2750		2 34
31	2921	3093	[illegible]	3436	3608	3779	3951	4122	4294	4465		3 52
32	4637	4809	4980	5152	5323	5495	5666	5838	6009	6180		4 69 5 86
33	6352	6523	6695	[illegible]	7038	7209	7381	7552	7723	7895		6 103
[illegible]	[illegible]	8237	8409	8580	8752	8923	9094	9266	9437	9608		7 120 8 138
35	9780	9951	$\bar{0}122$	0294	0465	[illegible]	0807	0979	1150	1321		9 155
36	4041492	1664	1835	2006	2177	2349	2520	2691	2862	3033		
37	3205	3376	3547	3718	3889	4061	4232	4403	4574	4745		
38	4916	5087	5258	5429	5601	5772	5943	6114	6285	6456		
39	6627	6798	6969	7140	7311	7482	7653	7824	7995	8166	171	
2540	8337	8508	8679	8850	[illegible]	9192	9363	9534	9705	9876		
41	4050047	0218	0388	0559	0730	0901	1072	1243	1414	1585		
42	1755	1926	2097	2268	2439	2610	2780	2951	3122	3293		171
[illegible]	3464	3634	3805	3976	4147	4317	4488	4659	4830	5000		1 17
44	5171	5342	5512	5683	5854	6025	6195	6366	6537	6707		2 34 3 51
45	[illegible]	7049	7219	7390	7560	7731	7902	8072	8243	8413		4 68
46	8584	8755	8925	[illegible]	9266	9437	9607	9778	9948	$\bar{0}119$		5 86
47	4060289	0460	0630	0801	0971	1142	1312	1483	1653	1824		6 103 7 120
48	1994	2165	2335	2506	2676	2846	3017	3187	3358	3528		8 137
49	3698	3869	4039	[illegible]	4380	4550	4721	4891	5061	5231		9 154
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4393327	3485	3643	3801	3959	4116	4274	4432	4590	4748	
4906	5064	5222	5379	5537	5695	5853	6011	6169	6326	
6484	6642	6800	6958	7115	7273	7431	7589	7747	7904	
8062	8220	8378	8535	8693	8851	9009	9166	9324	9482	
9639	9797	9955	0̄112	0270	0428	0585	0743	0901	1058	
4401216	1374	1531	1689	1847	2004	2162	2319	2477	2635	
2792	2950	3107	3265	3422	3580	3738	3895	4053	4210	
4368	4525	4683	4840	4998	5155	5313	5470	5628	5785	
5943	6100	6258	6415	6572	6730	6887	7045	7202	7360	
7517	7674	7832	7989	8147	8304	8461	8619	8776	8933	
9091	9248	9406	9563	9720	9878	0̄035	0192	0349	0507	
4410664	0821	0979	1136	1293	1450	1608	1765	1922	2080	
2237	2394	2551	2708	2866	3023	3180	3337	3494	3652	
3809	3966	4123	4280	4438	4595	4752	4909	5066	5223	
5380	5538	5695	5852	6009	6166	6323	6480	6637	6794	
6951	7108	7265	7423	7580	7737	7894	8051	8208	8365	157
8522	8679	8836	8993	9150	9307	9464	9621	9778	9935	
4420092	0249	0405	0562	0719	0876	1033	1190	1347	1504	
1661	1818	1975	2132	2288	2445	2602	2759	2916	3073	
3230	3386	3543	3700	3857	4014	4171	4327	4484	4641	
4798	4954	5111	5268	5425	5582	5738	5895	6052	6209	
6365	6522	6679	6835	6992	7149	7306	7462	7619	7776	
7932	8089	8246	8402	8559	8716	8872	9029	9185	9342	
9499	9655	9812	9969	0̄125	0282	0438	0595	0751	0908	
4431065	1221	1378	1534	1691	1847	2004	2160	2317	2473	
2630	2786	2943	3099	3256	3412	3569	3725	3882	4038	
4195	4351	4507	4664	4820	4977	5133	5290	5446	5602	
5759	5915	6072	6228	6384	6541	6697	6853	7010	7166	
7322	7479	7635	7791	7948	8104	8260	8417	8573	8729	
8885	9042	9198	9354	9511	9667	9823	9979	0̄136	0292	
4440448	0604	0760	0917	1073	1229	1385	1541	1698	1854	
2010	2166	2322	2478	2635	2791	2947	3103	3259	3415	
3571	3727	3883	4040	4196	4352	4508	4664	4820	4976	
5132	5288	5444	5600	5756	5912	6068	6224	6380	6536	156
6692	6848	7004	7160	7316	7472	7628	7784	7940	8096	
8252	8408	8564	8720	8876	9032	9188	9343	9499	9655	
9811	9967	0̄123	0279	0435	0590	0746	0902	1058	1214	
4451370	1526	1681	1837	1993	2149	2305	2460	2616	2772	
2928	3083	3239	3395	3551	3706	3862	4018	4174	4329	
4485	4641	4797	4952	5108	5264	5419	5575	5731	5886	
6042	6198	6353	6509	6665	6820	6976	7132	7287	7443	
7598	7754	7910	8065	8221	8376	8532	8687	8843	8999	
9154	9310	9465	9621	9776	9932	0̄087	0243	0398	0554	
4460709	0865	1020	1176	1331	1487	1642	1798	1953	2109	
2264	2419	2575	2730	2886	3041	3197	3352	3507	3663	
3818	3974	4129	4284	4440	4595	4750	4906	5061	5216	
5372	5527	5682	5838	5993	6148	6304	6459	6614	6769	
6925	7080	7235	7390	7546	7701	7856	8011	8167	8322	
8477	8632	8788	8943	9098	9253	9408	9563	9719	9874	
4470029	0184	0339	0494	0650	0805	0960	1115	1270	1425	
0	1	2	3	4	5	6	7	8	9	D

Pro.	158
1	16
2	32
3	47
4	63
5	79
6	95
7	111
8	126
9	142

Pro.	157
1	16
2	31
3	47
4	63
5	79
6	94
7	110
8	126
9	141

Pts.	156
1	16
2	31
3	47
4	62
5	78
6	94
7	109
8	125
9	140

N.	0	1	2	3	4	5	6	7	8	9	D	Pro.
2600	4149733	9901	0̄068	0235	0402	0569	0736	0903	1070	1237	167	
01	4151404	1570	1737	1904	2071	2238	2405	2572	2739	2906		167
02	3073	3240	3407	3574	3741	3907	4074	4241	4408	4575		1 17
03	4742	4909	5075	5242	5409	5576	5743	5909	6076	6243		2 33
04	6410	6577	6743	6910	7077	7244	7410	7577	7744	7911		3 50
05	8077	8244	8411	8577	8744	8911	9077	9244	9411	9577		4 67
06	9744	9911	0̄077	0244	0411	0577	0744	0911	1077	1244		5 84
07	4161410	1577	1743	1910	2077	2243	2410	2576	2743	2909		6 100
08	3076	3242	3409	3575	3742	3908	4075	4241	4408	4574		7 117
09	4741	4907	5074	5240	5407	5573	5739	5906	6072	6239		8 134
2610	6405	6571	6738	6904	7071	7237	7403	7570	7736	7902		9 150
11	8069	8235	8401	8568	8734	8900	9067	9233	9399	9565		
12	9732	9898	0̄064	0231	0397	0563	0729	0895	1062	1228		
13	4171394	1560	1726	1893	2059	2225	2391	2557	2724	2890		
14	3056	3222	3388	3554	3720	3886	4053	4219	4385	4551		166
15	4717	4883	5049	5215	5381	5547	5713	5879	6045	6211	166	1 17
16	6377	6543	6709	6875	7041	7207	7373	7539	7705	7871		2 33
17	8037	8203	8369	8535	8701	8867	9033	9199	9365	9531		3 50
18	9696	9862	0̄028	0194	0360	0526	0692	0857	1023	1189		4 66
19	4181355	1521	1687	1852	2018	2184	2350	2516	2681	2847		5 83
2620	3013	3179	3344	3510	3676	3842	4007	4173	4339	4505		6 100
21	4670	4836	5002	5167	5333	5499	5664	5830	5996	6161		7 116
22	6327	6493	6658	6824	6989	7155	7321	7486	7652	7817		8 133
23	7983	8148	8314	8480	8645	8811	8976	9142	9307	9473		9 149
24	9638	9804	9969	0̄135	0300	0466	0631	0797	0962	1128		
25	4191293	1459	1624	1789	1955	2120	2286	2451	2616	2782		
26	2947	3113	3278	3443	3609	3774	3939	4105	4270	4435		
27	4601	4766	4931	5097	5262	5427	5593	5758	5923	6088		
28	6254	6419	6584	6749	6915	7080	7245	7410	7575	7741		165
29	7906	8071	8236	8401	8567	8732	8897	9062	9227	9392		1 17
2630	9557	9723	9888	0̄053	0218	0383	0548	0713	0878	1043		2 33
31	4201208	1374	1539	1704	1869	2034	2199	2364	2529	2694		3 50
32	2859	3024	3189	3354	3519	3684	3849	4014	4179	4344	165	4 66
33	4509	4674	4838	5003	5168	5333	5498	5663	5828	5993		5 83
34	6158	6323	6487	6652	6817	6982	7147	7312	7477	7641		6 99 7 116
35	7806	7971	8136	8301	8465	8630	8795	8960	9125	9289		8 132
36	9454	9619	9784	9948	0̄113	0278	0442	0607	0772	0937		9 149
37	4211101	1266	1431	1595	1760	1925	2089	2254	2419	2583		
38	2748	2913	3077	3242	3406	3571	3736	3900	4065	4229		
39	4394	4558	4723	4888	5052	5217	5381	5546	5710	5875		
2640	6039	6204	6368	6533	6697	6862	7026	7191	7355	7520		
41	7684	7848	8013	8177	8342	8506	8671	8835	8999	9164		
42	9328	9493	9657	9821	9986	0̄150	0314	0479	0643	0807		164
43	4220972	1136	1300	1465	1629	1793	1957	2122	2286	2450		1 16
44	2615	2779	2943	3107	3271	3436	3600	3764	3928	4093		2 33 3 49
45	4257	4421	4585	4749	4913	5078	5242	5406	5570	5734		4 66
46	5898	6063	6227	6391	6555	6719	6883	7047	7211	7375		5 82
47	7539	7703	7868	8032	8196	8360	8524	8688	8852	9016		6 98
48	9180	9344	9508	9672	9836	0̄000	0164	0328	0492	0656	164	7 115 8 131
49	4230820	0984	1147	1311	1475	1639	1803	1967	2131	2295		9 148
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52	4551495	1647	1800	1952	2104	2257	2409	2561	2713	2865		1 15
53	3018	3170	3322	3474	3627	3779	3931	4083	4235	4388		2 30
54	4540	4692	4844	4996	5148	5300	5453	5605	5757	5909		3 46 4 61
55	6061	6213	6365	6517	6670	6822	6974	7126	7278	7430		5 76
56	7582	7734	7886	8038	8190	8342	8494	8646	8798	8950		6 91
57	9102	9254	9406	9558	9710	9862	0̄014	0166	0318	0470		7 106
58	4560622	0774	0926	1078	1230	1382	1534	1686	1838	1990	152	8 122 9 137
59	2142	2293	2445	2597	2749	2901	3053	3205	3357	3508		
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61	5179	5330	5482	5634	5786	5938	6089	6241	6393	6545		
62	6696	6848	7000	7152	7303	7455	7607	7758	7910	8062		
63	8213	8365	8517	8669	8820	8972	9124	9275	9427	9578		
64	9730	9882	0̄033	0185	0337	0488	0640	0791	0943	1095		
65	4571246	1398	1549	1701	1853	2004	2156	2307	2459	2610		
66	2762	2913	3065	3216	3368	3519	3671	3822	3974	4125		
67	4277	4428	4580	4731	4883	5034	5186	5337	5489	5640		
68	5791	5943	6094	6246	6397	6549	6700	6851	7003	7154		
69	7305	7457	7608	7760	7911	8062	8214	8365	8516	8668		
2870	8819	8970	9122	9273	9424	9576	9727	9878	0̄029	0181		
71	4580332	0483	0634	0786	0937	1088	1239	1391	1542	1693		151
72	1844	1996	2147	2298	2449	2600	2752	2903	3054	3205		1 15
73	3356	3507	3659	3810	3961	4112	4263	4414	4565	4717		2 30
74	4868	5019	5170	5321	5472	5623	5774	5925	6076	6227		3 45 4 60
75	6378	6530	6681	6832	6983	7134	7285	7436	7587	7738	151	5 76
76	7889	8040	8191	8342	8493	8644	8795	8946	9097	9248		6 91
77	9399	9550	9701	9851	0̄002	0153	0304	0455	0606	0757		7 106
78	4590908	1059	1210	1361	1511	1662	1813	1964	2115	2266		8 121
79	2417	2567	2718	2869	3020	3171	3322	3472	3623	3774		9 136
2880	3925	4076	4226	4377	4528	4679	4830	4980	5131	5282		
81	5433	5583	5734	5885	6036	6186	6337	6488	6638	6789		
82	6940	7090	7241	7392	7542	7693	7844	7994	8145	8296		
83	8446	8597	8748	8898	9049	9200	9350	9501	9651	9802		
84	9953	0̄103	0254	0404	0555	0705	0856	1007	1157	1308		
85	4601458	1609	1759	1910	2060	2211	2361	2512	2662	2813		
86	2963	3114	3264	3415	3565	3716	3866	4017	4167	4317		
87	4468	4618	4769	4919	5070	5220	5370	5521	5671	5822		
88	5972	6122	6273	6423	6573	6724	6874	7024	7175	7325		
89	7475	7626	7776	7926	8077	8227	8377	8528	8678	8828		
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91	4610481	0631	0781	0932	1082	1232	1382	1532	1683	1833		
92	1983	2133	2283	2433	2584	2734	2884	3034	3184	3334		150
93	3484	3634	3785	3935	4085	4235	4385	4535	4685	4835		1 15
94	4985	5135	5285	5435	5585	5736	5886	6036	6186	6336	150	2 30 3 45
95	6486	6636	6786	6936	7086	7236	7386	7536	7686	7836		4 60
96	7986	8136	8285	8435	8585	8735	8885	9035	9185	9335		5 75
97	9485	9635	9785	9935	0̄085	0234	0384	0534	0684	0834		6 90 7 105
98	4620984	1134	1284	1433	1583	1733	1883	2033	2183	2332		8 120
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01	5246	5407	5567	5728	5889	6050	6210	6371	6532	6693		161 1 16
02	6853	7014	7175	7336	7496	7657	7818	7978	8139	8300		2 32
03	8460	8621	8782	8942	9103	9264	9424	9585	9746	9906		3 48
04	4320067	0227	0388	0549	0709	0870	1030	1191	1352	1512		4 64
05	1673	1833	1994	2154	2315	2475	2636	2796	2957	3117		5 81
06	3278	3438	3599	3759	3920	4080	4241	4401	4562	4722		6 97
07	4883	5043	5203	5364	5524	5685	5845	6005	6166	6326		7 113
08	6487	6647	6807	6968	7128	7288	7449	7609	7769	7930		8 129
09	8090	8250	8411	8571	8731	8892	9052	9212	9372	9533		9 145
2710	9693	9853	$\bar{0}013$	0174	0334	0494	0654	0815	0975	1135		
11	4331295	1455	1616	1776	1936	2096	2256	2416	2577	2737		
12	2897	3057	3217	3377	3537	3697	3858	4018	4178	4338		
13	4498	4658	4818	4978	5138	5298	5458	5618	5778	5938	160	
14	6098	6258	6418	6578	6738	6898	7058	7218	7378	7538		
15	7698	7858	8018	8178	8338	8498	8658	8818	8978	9138		
16	9298	9458	9617	9777	9937	$\bar{0}097$	0257	0417	0577	0737		
17	4340896	1056	1216	1376	1536	1696	1855	2015	2175	2335		
18	2495	2654	2814	2974	3134	3293	3453	3613	3773	3932		
19	4092	4252	4412	4571	4731	4891	5050	5210	5370	5529		
2720	5689	5849	6008	6168	6328	6487	6647	6807	6966	7126		
21	7285	7445	7605	7764	7924	8083	8243	8403	8562	8722		160
22	8881	9041	9200	9360	9519	9679	9838	9998	$\bar{0}157$	0317		1 16
23	4350476	0636	0795	0955	1114	1274	1433	1593	1752	1912		2 32
24	2071	2230	2390	2549	2709	[illegible]	3028	3187	3346	3506		3 48 4 64
25	3665	3824	3984	4143	4303	4462	4621	4781	4940	5099		5 80
26	5259	5418	5577	5736	5896	6055	6214	6374	6533	6692		6 96
27	6851	7011	7170	7329	7488	7648	7807	7966	8125	8284		7 112
28	8444	8603	8762	8921	9080	9240	9399	9558	9717	9876		8 128
29	4360035	0194	0354	0513	0672	0831	0990	1149	1308	1467		9 144
2730	1626	1786	1945	2104	2263	2422	2581	2740	2899	3058	159	
31	3217	3376	3535	3694	3853	4012	4171	4330	4489	4648		
32	4807	4966	5125	5284	5443	5602	5761	5920	6078	6237		
33	6396	6555	6714	6873	7032	7191	7350	7509	7667	7826		
34	7985	8144	8303	8462	8620	8779	8938	9097	9256	9415		
35	9573	9732	9891	$\bar{0}050$	0208	0367	0526	0685	0843	1009		
36	4371161	1320	1478	1637	1796	1955	2113	2272	2431	2589		
37	2748	2907	3065	3224	3383	3541	3700	3859	4017	4176		
38	4334	4493	4652	4810	4969	5127	5286	5445	5603	5762		
39	5920	6079	6237	6396	6555	6713	6872	7030	7189	7347		
2740	7506	7664	7823	7981	8140	8298	8457	8615	8773	8932		
41	9090	9249	9407	9566	9724	9883	$\bar{0}041$	0199	0358	0516		
42	4380675	0833	0991	1150	1308	1466	1625	1783	1941	2100		159
43	2258	2416	2575	2733	2891	3050	3208	3366	3525	3683		1 16 2 32
44	3841	3999	4158	4316	4474	4632	4791	4949	5107	5265		3 48
45	5423	5582	5740	5898	6056	6214	6373	6531	6689	6847		4 64
46	7005	7163	7322	7480	7638	7796	7954	8112	8270	8428		5 80 6 95
47	8587	8745	8903	9061	9219	9377	9535	9693	9851	$\bar{0}009$		7 111
48	4390167	0325	0483	0641	0799	0957	1115	1273	1431	1589	158	8 127
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52	4701164	1311	1458	1605	1752	1899	2046	2193	2340	2487	
53	2634	2782	2929	3076	3223	3370	3517	3664	3811	3958	
54	4105	4252	4399	4546	4693	4840	4987	5134	5281	5428	147
55	5575	5722	5869	6016	6163	6310	6457	6604	6750	6897	
56	7044	7191	7338	7485	7632	7779	7926	8073	8219	8366	
57	8513	8660	8807	8954	9101	9248	9394	9541	9688	9835	
58	9982	0̅129	0275	0422	0569	0716	0863	1009	1156	1303	
59	4711450	1596	1743	1890	2037	2183	2330	2477	2624	2770	
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61	4384	4531	4677	4824	4971	5117	5264	5411	5557	5704	
62	5851	5997	6144	6290	6437	6584	6730	6877	7023	7170	
63	7317	7463	7610	7756	7903	8049	8196	8342	8489	8635	
64	8782	8929	9075	9222	9368	9515	9661	9808	9954	0̅101	
65	4720247	0393	0540	0686	0833	0979	1126	1272	1419	1565	
66	1711	1858	2004	2151	2297	2444	2590	2736	2883	3029	
67	3175	3322	3468	3615	3761	3907	4054	4200	4346	4493	
68	4639	4785	4932	5078	5224	5371	5517	5663	5809	5956	
69	6102	6248	6395	6541	6687	6833	6980	7126	7272	7418	
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71	9027	9173	9319	9465	9611	9757	9903	0̅050	0196	0342	
72	4730488	0634	0780	0926	1073	1219	1365	1511	1657	1803	
73	1949	2095	2241	2387	2533	2679	2825	2972	3118	3264	146
74	3410	3556	3702	3848	3994	4140	4286	4432	4578	4724	
75	4870	5016	5162	5308	5454	5600	5746	5891	6037	6183	
76	6329	6475	6621	6767	6913	7059	7205	7351	7497	7642	
77	7788	7934	8080	8226	8372	8518	8664	8809	8955	9101	
78	9247	9393	9539	9684	9830	9976	0̅122	0268	0413	0559	
79	4740705	0851	0997	1142	1288	1434	1580	1725	1871	2017	
2980	2163	2308	2454	2600	2746	2891	3037	3183	3328	3474	
81	3620	3765	3911	4057	4202	4348	4494	4639	4785	4931	
82	5076	5222	5368	5513	5659	5805	5950	6096	6241	6387	
83	6533	6678	6824	6969	7115	7260	7406	7552	7697	7843	
84	7988	8134	8279	8425	8570	8716	8861	9007	9152	9298	
85	9443	9589	9734	9880	0̅025	0171	0316	0462	0607	0753	
86	4750898	1043	1189	1334	1480	1625	1771	1916	2061	2207	
87	2352	2498	2643	2788	2934	3079	3225	3370	3515	3661	
88	3806	3951	4097	4242	4387	4533	4678	4823	4969	5114	
89	5259	5404	5550	5695	5840	5986	6131	6276	6421	6567	
2990	6712	6857	7002	7148	7293	7438	7583	7729	7874	8019	
91	8164	8309	8455	8600	8745	8890	9035	9180	9326	9471	
92	9616	9761	9906	0̅051	0196	0342	0487	0632	0777	0922	
93	4761067	1212	1357	1502	1648	1793	1938	2083	2228	2373	
94	2518	2663	2808	2953	3098	3243	3388	3533	3678	3823	145
95	3968	4113	4258	4403	4548	4693	4838	4983	5128	5273	
96	5418	5563	5708	5853	5998	6143	6288	6433	6578	6723	
97	6867	7012	7157	7302	7447	7592	7737	7882	8027	8171	
98	8316	8461	8606	8751	8896	9041	9185	9330	9475	9620	
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7	102
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02	4681	4836	4991	5146	5301	5456	5611	5766	5921	6076	155
03	6231	6386	6541	6696	6851	7006	7161	7315	7470	7625	
04	7780	7935	8090	8245	8400	8554	8709	8864	9019	9174	
05	9329	9483	9638	9793	9948	0̄103	0258	0412	0567	0722	
06	4480877	1031	1186	1341	1496	1650	1805	1960	2115	2269	
07	2424	2579	2734	2888	3043	3198	3352	3507	3662	3816	
08	3971	4126	4280	4435	4590	4744	4899	5054	5208	5363	
09	5517	5672	5827	5981	6136	6290	6445	6600	6754	6909	
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11	8608	8763	8917	9072	9226	9381	9535	9690	9844	9999	
12	4490153	0308	0462	0616	0771	0925	1080	1234	1389	1543	
13	1697	1852	2006	2160	2315	2469	2624	2778	2932	3087	
14	3241	3395	3550	3704	3858	4013	4167	4321	4475	4630	
15	4784	4938	5093	5247	5401	5555	5710	5864	6018	6172	
16	6327	6481	6635	6789	6943	7098	7252	7406	7560	7714	
17	7868	8023	8177	8331	8485	8639	8793	8948	9102	9256	
18	9410	9564	9718	9872	0̄026	0180	0334	0489	0643	0797	
19	4500951	1105	1259	1413	1567	1721	1875	2029	2183	2337	
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21	4031	4185	4339	4493	4647	4801	4954	5108	5262	5416	
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25	4510185	0338	0492	0646	0799	0953	1107	1261	1414	1568	
26	1722	1875	2029	2183	2336	2490	2644	2797	2951	3104	
27	3258	3412	3565	3719	3873	4026	4180	4333	4487	4640	
28	4794	4948	5101	5255	5408	5562	5715	5869	6022	6176	
29	6329	6483	6636	6790	6943	7097	7250	7404	7557	7711	
2830	7864	8018	8171	8325	8478	8632	8785	8938	9092	9245	
31	9399	9552	9705	9859	0̄012	0166	0319	0472	0626	0779	
32	4520932	1086	1239	1393	1546	1699	1853	2006	2159	2312	
33	2466	2619	2772	2926	3079	3232	3385	3539	3692	3845	
34	3998	4152	4305	4458	4611	4765	4918	5071	5224	5377	
35	5531	5684	5837	5990	6143	6297	6450	6603	6756	6909	
36	7062	7215	7369	7522	7675	7828	7981	8134	8287	8440	
37	8593	8746	8900	9053	9206	9359	9512	9665	9818	9971	
38	4530124	0277	0430	0583	0736	0889	1042	1195	1348	1501	153
39	1654	1807	1960	2113	2266	2419	2572	2725	2878	3030	
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41	4712	4865	5018	5171	5324	5477	5629	5782	5935	6088	
42	6241	6394	6546	6699	6852	7005	7158	7310	7463	7616	
43	7769	7921	8074	8227	8380	8532	8685	8838	8990	9143	
44	9296	9449	9601	9754	9907	0̄059	0212	0365	0517	0670	
45	4540823	0975	1128	1281	1433	1586	1739	1891	2044	2196	
46	2349	2502	2654	2807	2959	3112	3264	3417	3570	3722	
47	3875	4027	4180	4332	4485	4637	4790	4942	5095	5247	
48	5400	5552	5705	5857	6010	6162	6315	6467	6620	6772	
49	6924	7077	7229	7382	7534	7687	7839	7991	8144	8296	
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5845	5988	6130	6272	6414	6557	6699	6841	6984	7126		1 14
7268	7410	7553	7695	7837	7979	8121	8264	8406	8548		2 28
8690	8833	8975	9117	9259	9401	9543	9686	9828	9970		3 43
1850112	0254	0396	0539	0681	0823	0965	1107	1249	1391		4 57
1533	1676	1818	1960	2102	2244	2386	2528	2670	2812		5 71
2954	3096	3239	3381	3523	3665	3807	3949	4091	4233	142	6 85
4375	4517	4659	4801	4943	5085	5227	5369	5511	5653		7 99
5795	5937	6079	6221	6363	6505	6647	6788	6930	7072		8 114
7214	7356	7498	7640	7782	7924	8066	8208	8350	8491		9 128
8633	8775	8917	9059	9201	9343	9484	9626	9768	9910		
1860052	0194	0336	0477	0619	0761	0903	1045	1186	1328		
1470	1612	1754	1895	2037	2179	2321	2462	2604	2746		
2888	3029	3171	3313	3455	3596	3738	3880	4021	4163		
4305	4446	4588	4730	4872	5013	5155	5297	5438	5580		
5722	5863	6005	6146	6288	6430	6571	6713	6855	6996		
7138	7279	7421	7563	7704	7846	7987	8129	8270	8412		
8554	8695	8837	8978	9120	9261	9403	9544	9686	9827		
9969	0̄110	0252	0393	0535	0676	0818	0959	1101	1242		
1871384	1525	1667	1808	1950	2091	2232	2374	2515	2657		•
2798	2940	3081	3222	3364	3505	3647	3788	3929	4071		
4212	4353	4495	4636	4778	4919	5060	5202	5343	5484		
5626	5767	5908	6050	6191	6332	6473	6615	6756	6897		141
7039	7180	7321	7462	7604	7745	7886	8027	8169	8310		1 14
8451	8592	8734	8875	9016	9157	9299	9440	9581	9722		2 28
9863	0̄004	0146	0287	0428	0569	0710	0852	0993	1134		3 42
1881275	1416	1557	1698	1839	1981	2122	2263	2404	2545		4 56
2686	2827	2968	3109	3251	3392	3533	3674	3815	3956		5 71
4097	4238	4379	4520	4661	4802	4943	5084	5225	5366	141	6 85
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6917	7058	7199	7340	7481	7622	7763	7904	8045	8185		8 113
8326	8467	8608	8749	8890	9031	9172	9313	9454	9594		9 127
9735	9876	0̄017	0158	0299	0440	0580	0721	0862	1003		
1891144	1285	1425	1566	1707	1848	1989	2129	2270	2411		
2552	2692	2833	2974	3115	3256	3396	3537	3678	3818		
3959	4100	4241	4381	4522	4663	4804	4944	5085	5226		
5366	5507	5648	5788	5929	6070	6210	6351	6492	6632		
6773	6914	7054	7195	7335	7476	7617	7757	7898	8038		
8179	8320	8460	8601	8741	8882	9023	9163	9304	9444		
9585	9725	9866	0̄006	0147	0287	0428	0569	0709	0850		
1900990	1131	1271	1412	1552	1693	1833	1973	2114	2254		
2395	2535	2676	2816	2957	3097	3238	3378	3518	3659		140
3799	3940	4080	4220	4361	4501	4642	4782	4922	5063		1 14
5203	5343	5484	5624	5765	5905	6045	6186	6326	6466		2 28
6607	6747	6887	7027	7168	7308	7448	7589	7729	7869		3 42
8010	8150	8290	8430	8571	8711	8851	8991	9132	9272		4 56
9412	9552	9693	9833	9973	0̄113	0253	0394	0534	0674		5 70
1910814	0954	1094	1235	1375	1515	1655	1795	1935	2076		6 84 7 98
2216	2356	2496	2636	2776	2916	3057	3197	3337	3477		8 112 9 126
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02	6974	7124	7273	7423	7573	7722	7872	8022	8171	8321		1 15
03	8470	8620	8770	8919	9069	9218	9368	9517	9667	9817		2 30
04	9966	0̄116	0265	0415	0564	0714	0863	1013	1162	1312		3 45 4 60
05	4631461	1611	1760	1910	2059	2209	2358	2508	2657	2807		5 75
06	2956	3106	3255	3404	3554	3703	3853	4002	4152	4301		6 90
07	4450	4600	4749	4898	5048	5197	5347	5496	5645	5795		7 105
08	5944	6093	6243	6392	6541	6691	6840	6989	7139	7288		8 120 9 135
09	7437	7587	7736	7885	8034	8184	8333	8482	8631	8781		
2910	8930	9079	9228	9378	9527	9676	9825	9974	0̄124	0273		
11	4640422	0571	0720	0870	1019	1168	1317	1466	1615	1765		
12	1914	2063	2212	2361	2510	2659	2808	2958	3107	3256		
13	3405	3554	3703	3852	4001	4150	4299	4448	4597	4746		
14	4895	5045	5194	5343	5492	5641	5790	5939	6088	6237	149	
15	6386	6535	6684	6833	6981	7130	7279	7428	7577	7726		
16	7875	8024	8173	8322	8471	8620	8769	8918	9067	9215		
17	9364	9513	9662	9811	9960	0̄109	0258	0406	0555	0704		
18	4650853	1002	1151	1299	1448	1597	1746	1895	2043	2192		
19	2341	2490	2639	2787	2936	3085	3234	3382	3531	3680		
2920	3829	3977	4126	4275	4423	4572	4721	4870	5018	5167		
21	5316	5464	5613	5762	5910	6059	6208	6356	6505	6653		149
22	6802	6951	7099	7248	7397	7545	7694	7842	7991	8140		1 15
23	8288	8437	8585	8734	8882	9031	9180	9328	9477	9625		2 30
24	9774	9922	0̄071	0219	0368	0516	0665	0813	0962	1110		3 45
25	4661259	1407	1556	1704	1853	2001	2149	2298	2446	2595		4 60
26	2743	2892	3040	3188	3337	3485	3634	3782	3930	4079		5 75
27	4227	4376	4524	4672	4821	4969	5117	5266	5414	5562		6 89
28	5711	5859	6007	6156	6304	6452	6601	6749	6897	7045		7 104 8 119
29	7194	7342	7490	7639	7787	7935	8083	8232	8380	8528		9 134
2930	8676	8824	8973	9121	9269	9417	9565	9714	9862	0̄010		
31	4670158	0306	0455	0603	0751	0899	1047	1195	1343	1492		
32	1640	1788	1936	2084	2232	2380	2528	2676	2824	2973		
33	3121	3269	3417	3565	3713	3861	4009	4157	4305	4453	148	
34	4601	4749	4897	5045	5193	5341	5489	5637	5785	5933		
35	6081	6229	6377	6525	6673	6821	6969	7117	7265	7413		
36	7561	7708	7856	8004	8152	8300	8448	8596	8744	8892		
37	9039	9187	9335	9483	9631	9779	9927	0̄074	0222	0370		
38	4680518	0666	0814	0961	1109	1257	1405	1553	1700	1848		
39	1996	2144	2291	2439	2587	2735	2882	3030	3178	3326		
2940	3473	3621	3769	3916	4064	4212	4360	4507	4655	4803		
41	4950	5098	5246	5393	5541	5689	5836	5984	6131	6279		
42	6427	6574	6722	6870	7017	7165	7312	7460	7607	7755		148
43	7903	8050	8198	8345	8493	8640	8788	8935	9083	9231		1 15
44	9378	9526	9673	9821	9968	0̄116	0263	0411	0558	0706		2 30 3 44
45	4690853	1000	1148	1295	1443	1590	1738	1885	2033	2180		4 59
46	2327	2475	2622	2770	2917	3064	3212	3359	3507	3654		5 74
47	3801	3949	4096	4243	4391	4538	4685	4833	4980	5127		6 89 7 104
48	5275	5422	5569	5717	5864	6011	6159	6306	6453	6600		8 118
49	6748	6895	7042	7190	7337	7484	7631	7778	7926	8073		9 133
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5862	6000	6138	6275	6413	6551	6689	6826	6964	7102		1 14
7240	7377	7515	7653	7791	7928	8066	8204	8341	8479		2 28
8617	8755	8892	9030	9168	9305	9443	9581	9718	9856		3 41
9994	0̄131	0269	0407	0544	0682	0819	0957	1095	1232		4 55
4991370	1508	1645	1783	1920	2058	2196	2333	2471	2608		5 69
2746	2883	3021	3158	3296	3434	3571	3709	3846	3984		6 83
4121	4259	4396	4534	4671	4809	4946	5084	5221	5359		7 97
5496	5634	5771	5909	6046	6184	6321	6459	6596	6733		8 110
6871	7008	7146	7283	7421	7558	7695	7833	7970	8108		9 124
8245	8382	8520	8657	8794	8932	9069	9207	9344	9481		
9619	9756	9893	0̄031	0168	0305	0443	0580	0717	0855		
5000992	1129	1267	1404	1541	1678	1816	1953	2090	2227		
2365	2502	2639	2777	2914	3051	3188	3325	3463	3600		
3737	3874	4012	4149	4286	4423	4560	4698	4835	4972		
5109	5246	5383	5521	5658	5795	5932	6069	6206	6344		
6481	6618	6755	6892	7029	7166	7303	7440	7578	7715		
7852	7989	8126	8263	8400	8537	8674	8811	8948	9085	137	
9222	9359	9496	9634	9771	9908	0̄045	0182	0319	0456		
5010593	0730	0867	1004	1141	1278	1415	1552	1688	1825		
1962	2099	2236	2373	2510	2647	2784	2921	3058	3195		137
3332	3469	3606	3743	3879	4016	4153	4290	4427	4564		1 14
4701	4838	4974	5111	5248	5385	5522	5659	5796	5932		2 27
6069	6206	6343	6480	6617	6753	6890	7027	7164	7301		3 41
7437	7574	7711	7848	7984	8121	8258	8395	8531	8668		4 55
8805	8942	9078	9215	9352	9489	9625	9762	9899	0̄035		5 69
5020172	0309	0446	0582	0719	0856	0992	1129	1266	1402		6 82
1539	1676	1812	1949	2086	2222	2359	2495	2632	2769		7 96
2905	3042	3178	3315	3452	3588	3725	3861	3998	4135		8 110
4271	4408	4544	4681	4817	4954	5091	5227	5364	5500		9 123
5637	5773	5910	6046	6183	6319	6456	6592	6729	6865		
7002	7138	7275	7411	7548	7684	7821	7957	8093	8230		
8366	8503	8639	8776	8912	9049	9185	9321	9458	9594		
9731	9867	0̄003	0140	0276	0413	0549	0685	0822	0958		
5031094	1231	1367	1503	1640	1776	1912	2049	2185	2321		
2458	2594	2730	2867	3003	3139	3276	3412	3548	3684		
3821	3957	4093	4229	4366	4502	4638	4774	4911	5047		
5183	5319	5456	5592	5728	5864	6000	6137	6273	6409		
6545	6681	6818	6954	7090	7226	7362	7498	7635	7771		
7907	8043	8179	8315	8451	8587	8724	8860	8996	9132		
9268	9404	9540	9676	9812	9948	0̄085	0221	0357	0493		
5040629	0765	0901	1037	1173	1309	1445	1581	1717	1853		136
1989	2125	2261	2397	2533	2669	2805	2941	3077	3213	136	1 14
3349	3485	3621	3757	3893	4029	4165	4301	4437	4573		2 27 3 41
4709	4845	4980	5116	5252	5388	5524	5660	5796	5932		4 54
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7426	7562	7698	7834	7970	8106	8241	8377	8513	8649		6 82 7 95
8785	8920	9056	9192	9328	9464	9599	9735	9871	0̄007		8 109
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3000	4771213	1357	1502	1647	1792	1936	2081	2226	2371	2515		
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02	4107	4252	4396	4541	4686	4830	4975	5119	5264	5409		1 15
03	5553	5698	5843	5987	6132	6276	6421	6566	6710	6855		2 29
04	6999	7144	7288	7433	7578	7722	7867	8011	8156	8300		3 44
05	8445	8589	8734	8878	9023	9167	9312	9456	9601	9745		4 58
06	9890	$\bar{0}$034	0179	0323	0468	0612	0757	0901	1045	1190		5 73
07	4781334	1479	1623	1768	1912	2056	2201	2345	2490	2634		6 87
08	2778	2923	3067	3211	3356	3500	3645	3789	3933	4078		7 102
09	4222	4366	4511	4655	4799	4943	5088	5232	5376	5521		8 116 9 131
3010	5665	5809	5954	6098	6242	6386	6531	6675	6819	6963		
11	7108	7252	7396	7540	7684	7829	7973	8117	8261	8405		
12	8550	8694	8838	8982	9126	9271	9415	9559	9703	9847		
13	9991	$\bar{0}$135	0280	0424	0568	0712	0856	1000	1144	1288		
14	4791432	1577	1721	1865	2009	2153	2297	2441	2585	2729		
15	2873	3017	3161	3305	3449	3593	3737	3881	4025	4169	144	
16	4313	4457	4601	4745	4889	5033	5177	5321	5465	5609		
17	5753	5897	6041	6185	6329	6473	6617	6761	6905	7048		
18	7192	7336	7480	7624	7768	7912	8056	8200	8343	8487		
19	8631	8775	8919	9063	9207	9350	9494	9638	9782	9926		
3020	4800069	0213	0357	0501	0645	0788	0932	1076	1220	1363		
21	1507	1651	1795	1939	2082	2226	2370	2513	2657	2801		
22	2945	3088	3232	3376	3519	3663	3807	3950	4094	4238		144
23	4381	4525	4669	4812	4956	5100	5243	5387	5531	5674		1 14
24	5818	5961	6105	6249	6392	6536	6679	6823	6967	7110		2 29
25	7254	7397	7541	7684	7828	7972	8115	8259	8402	8546		3 43
26	8689	8833	8976	9120	9263	9407	9550	9694	9837	9981		4 58
27	4810124	0268	0411	0555	0698	0842	0985	1128	1272	1415		5 72
28	1559	1702	1846	1989	2132	2276	2419	2563	2706	2849		6 86
29	2993	3136	3279	3423	3566	3710	3853	3996	4140	4283		7 101 8 115 9 130
3030	4426	4570	4713	4856	5000	5143	5286	5429	5573	5716		
31	5859	6003	6146	6289	6432	6576	6719	6862	7005	7149		
32	7292	7435	7578	7722	7865	8008	8151	8295	8438	8581		
33	8724	8867	9010	9154	9297	9440	9583	9726	9869	$\bar{0}$013		
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35	1587	1730	1873	2016	2159	2302	2445	2589	2732	2875		
36	3018	3161	3304	3447	3590	3733	3876	4019	4162	4305		
37	4448	4591	4734	4877	5020	5163	5306	5449	5592	5735		
38	5878	6021	6164	6307	6449	6592	6735	6878	7021	7164	143	
39	7307	7450	7593	7736	7879	8021	8164	8307	8450	8593		
3040	8736	8879	9022	9164	9307	9450	9593	9736	9879	$\bar{0}$021		
41	4830164	0307	0450	0593	0735	0878	1021	1164	1307	1449		
42	1592	1735	1878	2020	2163	2306	2449	2591	2734	2877		143
43	3020	3162	3305	3448	3590	3733	3876	4018	4161	4304		1 14
44	4446	4589	4732	4874	5017	5160	5302	5445	5588	5730		2 29
45	5873	6016	6158	6301	6443	6586	6729	6871	7014	7156		3 43
46	7299	7442	7584	7727	7869	8012	8154	8297	8439	8582		4 57 5 72
47	8725	8867	9010	9152	9295	9437	9580	9722	9865	$\bar{0}$007		6 86
48	4840150	0292	0435	0577	0720	0862	1004	1147	1289	1432		7 100 8 114
49	1574	1717	1859	2002	2144	2286	2429	2571	2714	2856		9 129
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52	5845	5988	6130	6272	6414	6557	6699	6841	6984	7126		1 14
53	7268	7410	7553	7695	7837	7979	8121	8264	8406	8548		2 28 3 43
54	8690	8833	8975	9117	9259	9401	9543	9686	9828	9970		4 57
55	4850112	0254	0396	0539	0681	0823	0965	1107	1249	1391		5 71
56	1533	1676	1818	1960	2102	2244	2386	2528	2670	2812		6 85
57	2954	3096	3239	3381	3523	3665	3807	3949	4091	4233	142	7 99
58	4375	4517	4659	4801	4943	5085	5227	5369	5511	5653		8 114
59	5795	5937	6079	6221	6363	6505	6647	6788	6930	7072		9 128
3060	7214	7356	7498	7640	7782	7924	8066	8208	8350	8491		
61	8633	8775	8917	9059	9201	9343	9484	9626	9768	9910		
62	4860052	0194	0336	0477	0619	0761	0903	1045	1186	1328		
63	1470	1612	1754	1895	2037	2179	2321	2462	2604	2746		
64	2888	3029	3171	3313	3455	3596	3738	3880	4021	4163		
65	4305	4446	4588	4730	4872	5013	5155	5297	5438	5580		
66	5722	5863	6005	6146	6288	6430	6571	6713	6855	6996		
67	7138	7279	7421	7563	7704	7846	7987	8129	8270	8412		
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69	9969	$\bar{0}$110	0252	0393	0535	0676	0818	0959	1101	1242		
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71	2798	2940	3081	3222	3364	3505	3647	3788	3929	4071		
72	4212	4353	4495	4636	4778	4919	5060	5202	5343	5484		
73	5626	5767	5908	6050	6191	6332	6473	6615	6756	6897		141
74	7039	7180	7321	7462	7604	7745	7886	8027	8169	8310		1 14
75	8451	8592	8734	8875	9016	9157	9299	9440	9581	9722		2 28 3 42
76	9863	$\bar{0}$004	0146	0287	0428	0569	0710	0852	0993	1134		4 56
77	4881275	1416	1557	1698	1839	1981	2122	2263	2404	2545		5 71
78	2686	2827	2968	3109	3251	3392	3533	3674	3815	3956		6 85 7 99
79	4097	4238	4379	4520	4661	4802	4943	5084	5225	5366	141	8 113
3080	5507	5648	5789	5930	6071	6212	6353	6494	6635	6776		9 127
81	6917	7058	7199	7340	7481	7622	7763	7904	8045	8185		
82	8326	8467	8608	8749	8890	9031	9172	9313	9454	9594		
83	9735	9876	$\bar{0}$017	0158	0299	0440	0580	0721	0862	1003		
84	4891144	1285	1425	1566	1707	1848	1989	2129	2270	2411		
85	2552	2692	2833	2974	3115	3256	3396	3537	3678	3818		
86	3959	4100	4241	4381	4522	4663	4804	4944	5085	5226		
87	5366	5507	5648	5788	5929	6070	6210	6351	6492	6632		
88	6773	6914	7054	7195	7335	7476	7617	7757	7898	8038		
89	8179	8320	8460	8601	8741	8882	9023	9163	9304	9444		
3090	9585	9725	9866	$\bar{0}$006	0147	0287	0428	0569	0709	0850		
91	4900990	1131	1271	1412	1552	1693	1833	1973	2114	2254		
92	2395	2535	2676	2816	2957	3097	3238	3378	3518	3659		140
93	3799	3940	4080	4220	4361	4501	4642	4782	4922	5063		1 14
94	5203	5343	5484	5624	5765	5905	6045	6186	6326	6466		2 28 3 42
95	6607	6747	6887	7027	7168	7308	7448	7589	7729	7869		4 56
96	8010	8150	8290	8430	8571	8711	8851	8991	9132	9272		5 70
97	9412	9552	9693	9833	9973	$\bar{0}$113	0253	0394	0534	0674		6 84
98	4910814	0954	1094	1235	1375	1515	1655	1795	1935	2076		7 98 8 112
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01	5018	5158	5298	5438	5578	5718	5858	5998	6138	6278		140
02	6418	6558	6698	[illegible]	[illegible]	7118	7258	7398	7538	7678	140	1 14
03	7818	7958	8098	8238	8378	8517	8657	8797	8937	9077		2 28
04	9217	9357	9497	9637	9777	9917	$\bar{0}$057	0196	0336	0476		3 42
05	4920616	0756	0896	1036	1175	1315	1455	1595	1735	1875		4 56
06	2015	2154	2294	2434	2574	2714	2853	2993	3133	3273		5 70
07	3413	3552	3692	3832	3972	4111	4251	4391	4531	4670		6 84
08	4810	4950	5090	5229	5369	5509	5648	5788	5928	6068		7 98
09	6207	6347	6487	6626	6766	6906	7045	7185	7325	7464		8 112 9 126
3110	7604	7744	7883	8023	8162	8302	8442	8581	8721	8861		
11	9000	9140	9279	9419	9558	9698	9838	9977	$\bar{0}$117	0256		
12	4930396	0535	0675	0815	0954	1094	1233	1373	1512	1652		
13	1791	1931	2070	2210	2349	2489	2628	2768	2907	3047		
14	3186	3326	3465	3604	3744	3883	4023	4162	4302	4441		
15	4581	4720	4859	4999	5138	5278	5417	5556	5696	5835		
16	5974	6114	6253	6393	6532	6671	6811	6950	7089	7229		
17	7368	7507	7647	7786	7925	8065	8204	8343	8483	8622		
18	8761	8900	9040	9179	9318	9457	9597	9736	9875	$\bar{0}$015		
19	4940154	0293	0432	0571	0711	0850	0989	1128	1268	1407		
3120	1546	1685	1824	1964	2103	2242	2381	2520	2659	2799		
21	2938	3077	3216	3355	3494	3633	3773	3912	4051	4190		
22	4329	4468	4607	4746	4885	5024	5164	5303	5442	5581		139
23	5720	5859	5998	6137	6276	6415	6554	6693	6832	6971		1 14
24	7110	7249	7388	7527	7666	7805	7944	8083	8222	8361	139	2 28
25	8500	8639	8778	8917	9056	9195	9334	9473	9612	9751		3 42 4 56
26	9890	$\bar{0}$029	0168	0307	0445	0584	0723	0862	1001	1140		5 70
27	4951279	1418	1557	1695	1834	1973	2112	2251	2390	2529		6 83 7 97
28	2667	[illegible]	2945	3084	3223	3362	3500	3639	3778	3917		8 111
29	4056	4194	4333	4472	4611	4750	4888	5027	5166	5305		9 125
3130	5443	5582	5721	5860	5998	6137	6276	6415	6553	6692		
31	6831	6969	7108	7247	7385	7524	7663	7802	7940	8079		
32	8218	8356	8495	8634	8772	8911	9049	9188	9327	9465		
33	9604	9743	9881	$\bar{0}$020	0159	0297	0436	0574	0713	0851		
34	4960990	1128	1267	1406	1544	1683	1821	1960	2098	2237		
35	2375	2514	2653	2791	2930	3068	3207	3345	3484	3622		
36	3761	3899	4038	4176	4314	4453	4591	4730	4868	5007		
37	5145	5284	5422	5560	5699	5837	5976	6114	6253	6391		
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39	7913	8052	8190	8328	8467	8605	8743	8882	9020	9158		
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42	2062	2200	2338	2476	2615	2753	2891	3029	3167	3306		138
43	3444	3582	3720	3858	3996	4135	4273	4411	4549	4687		1 14
44	4825	4964	5102	5240	5378	5516	5654	5792	5930	6068		2 28 3 41
45	6206	6345	6483	6621	6759	6897	7035	7173	7311	7449		4 55
46	7587	7725	7863	8001	8139	8277	8415	8553	8691	8829	138	5 69
47	8967	9105	9243	9381	9519	9657	9795	9933	$\bar{0}$071	0209		6 83
48	4980347	0485	0623	0761	0899	1037	1175	1313	1451	1589		7 97 8 110
49	1727	1865	2002	2140	2278	2416	2554	2692	2830	2968		9 124
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4336	4465	4595	4724	4854	4983	5113	5242	5372	5501		2 26
5631	5760	5890	6019	6148	6278	6407	6537	6666	6796		3 39
6925	7055	7184	7314	7443	7572	7702	7831	7961	8090		4 52
8220	8349	8478	8608	8737	8867	8996	9125	9255	9384		5 65
9513	9643	9772	9902	$\overline{0}031$	0160	0290	0419	0548	0678		6 78
5260807	0936	1066	1195	1324	1454	1583	1712	1841	1971		7 91
2100	2229	2359	2488	2617	2746	2876	3005	3134	3264		8 104
3393	3522	3651	3781	3910	4039	4168	4297	4427	4556		9 117
4685	4814	4944	5073	5202	5331	5460	5590	5719	5848		
5977	6106	6235	6365	6494	6623	6752	6881	7010	7140		
7269	7398	7527	7656	7785	7914	8043	8173	8302	8431		
8560	8689	8818	8947	9076	9205	9334	9463	9593	9722		
9851	9980	$\overline{0}109$	0238	0367	0496	0625	0754	0883	1012		
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3721	3850	3979	4108	4237	4366	4494	4623	4752	4881		
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2738	2866	2995	3124	3252	3381	3510	3638	3767	3896		4 52
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5300716	0844	0972	1100	1228	1356	1485	1613	1741	1869		
1997	2125	2253	2381	2509	2637	2766	2894	3022	3150		
3278	3406	3534	3662	3790	3918	4046	4174	4302	4430		
4558	4686	4814	4943	5071	5199	5327	5455	5583	5711	128	128
5839	5967	6095	6223	6351	6479	6607	6734	6862	6990		1 13
7118	7246	7374	7502	7630	7758	7886	8014	8142	8270		2 26
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9677	9805	9933	$\overline{0}060$	0188	0316	0444	0572	0700	0828		5 64
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02	4213	4349	4485	4620	4756	4891	5027	5163	5298	5434		1 14
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04	6925	7061	7196	7332	7467	7603	7738	7874	8009	8145		3 41
05	8280	8416	8551	8687	8822	8958	9093	9229	9364	9500		4 54
06	9635	9771	9906	0042	0177	0312	0448	0583	0719	0854		5 68
07	5060990	1125	1260	1396	1531	1667	1802	1937	2073	2208		6 82
08	2344	2479	2614	2750	2885	3020	3156	3291	3426	3562		7 95
09	3697	3833	3968	4103	4238	4374	4509	4644	4780	4915		8 109 9 122
3210	5050	5186	5321	5456	5591	5727	5862	5997	6133	6268		
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16	3160	3295	3430	3566	3701	3836	3971	4106	4241	4376	135	
17	4511	4646	4781	4916	5051	5186	5321	5456	5590	5725		
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22	5081255	1390	1525	1660	1794	1929	2064	2199	2334	2468		1 14
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24	3950	4085	4220	4354	4489	4624	4758	4893	5028	5163		3 41
25	5297	5432	5567	5701	5836	5970	6105	6240	6374	6509		4 54 5 68
26	6644	6778	6913	7047	7182	7317	7451	7586	7720	7855		6 81
27	7990	8124	8259	8393	8528	8663	8797	8932	9066	9201		7 95
28	9335	9470	9604	9739	9873	0008	0142	0277	0411	0546		8 108
29	5090680	0815	0949	1084	1218	1353	1487	1622	1756	1891		9 122
3230	2025	2160	2294	2429	2563	2697	2832	2966	3101	3235		
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33	6057	6191	6326	6460	6594	6729	6863	6997	7132	7266		
34	7400	7534	7669	7803	7937	8072	8206	8340	8474	8609		
35	8743	8877	9011	9146	9280	9414	9548	9682	9817	9951		
36	5100085	0219	0354	0488	0622	0756	0890	1024	1159	1293		
37	1427	1561	1695	1829	1964	2098	2232	2366	2500	2634		
38	2768	2903	3037	3171	3305	3439	3573	3707	3841	3975		
39	4109	4244	4378	4512	4646	4780	4914	5048	5182	5316		
3240	5450	5584	5718	5852	5986	6120	6254	6388	6522	6656	134	
41	6790	6924	7058	7192	7326	7460	7594	7728	7862	7996		
42	8130	8264	8398	8532	8666	8800	8934	9068	9202	9336		134
43	9469	9603	9737	9871	0005	0139	0273	0407	0541	0675		1 13
44	5110808	0942	1076	1210	1344	1478	1612	1745	1879	2013		2 27
45	2147	2281	2415	2548	2682	2816	2950	3084	3218	3351		3 40 4 54
46	3485	3619	3753	3887	4020	4154	4288	4422	4555	4689		5 67
47	4823	4957	5090	5224	5358	5492	5625	5759	5893	6026		6 80
48	6160	6294	6428	6561	6695	6829	6962	7096	7230	7363		7 94 8 107
49	7497	7631	7764	7898	8032	8165	8299	8433	8566	8700		9 121
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5380708	0834	0959	1085	1211	1337	1463	1588	1714	1840		1 13
1966	2092	2217	2343	2469	2595	2720	2846	2972	3098		2 25
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4481	4606	4732	4858	4983	5109	5235	5360	5486	5612		4 50
5737	5863	5989	6114	6240	6366	6491	6617	6743	6868		5 63
6994	7119	7245	7371	7496	7622	7747	7873	7999	8124		6 76
8250	8375	8501	8627	8752	8878	9003	9129	9255	9380		7 88
9506	9631	9757	9882	0̄008	0133	0259	0384	0510	0635		8 101
5390761	0887	1012	1138	1263	1389	1514	1640	1765	1891		9 113
2016	2141	2267	2392	2518	2643	2769	2894	3020	3145		
3271	3396	3522	3647	3772	3898	4023	4149	4274	4400		
4525	4650	4776	4901	5027	5152	5277	5403	5528	5653		
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7032	7158	7283	7408	7534	7659	7784	7910	8035	8160		
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2043	2168	2293	2419	2544	2669	2794	2919	3044	3170		
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4546	4671	4796	4921	5047	5172	5297	5422	5547	5672		125
5797	5922	6047	6172	6297	6423	6548	6673	6798	6923		1 13
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5410798	0923	1048	1172	1297	1422	1547	1672	1797	1922		5 63
2047	2172	2297	2422	2546	2671	2796	2921	3046	3171		6 75
3296	3421	3546	3670	3795	3920	4045	4170	4295	4419		7 88
4544	4669	4794	4919	5044	5168	5293	5418	5543	5668		8 100
5792	5917	6042	6167	6292	6416	6541	6666	6791	6915		9 113
7040	7165	7290	7415	7539	7664	7789	7913	8038	8163		
8288	8412	8537	8662	8787	8911	9036	9161	9285	9410		
9535	9659	9784	9909	0̄033	0158	0283	0407	0532	0657		
5420781	0906	1031	1155	1280	1405	1529	1654	1779	1903		
2028	2152	2277	2402	2526	2651	2775	2900	3025	3149		
3274	3398	3523	3648	3772	3897	4021	4146	4270	4395		
4519	4644	4769	4893	5018	5142	5267	5391	5516	5640		
5765	5889	6014	6138	6263	6387	6512	6636	6761	6885		
7010	7134	7259	7383	7508	7632	7756	7881	8005	8130		
8254	8379	8503	8628	8752	8876	9001	9125	9250	9374		
9498	9623	9747	9872	9996	0̄120	0245	0369	0494	0618		124
5430742	0867	0991	1115	1240	1364	1488	1613	1737	1862		1 12
1986	2110	2235	2359	2483	2607	2732	2856	2980	3105		2 25
3229	3353	3478	3602	3726	3850	3975	4099	4223	4348		3 37
4472	4596	4720	4845	4969	5093	5217	5342	5466	5590		4 50
5714	5838	5963	6087	6211	6335	6460	6584	6708	6832		5 62
6956	7081	7205	7329	7453	7577	7701	7826	7950	8074		6 74
8198	8322	8446	8571	8695	8819	8943	9067	9191	9315		7 87
9439	9564	9688	9812	9936	0̄060	0184	0308	0432	0556		8 99 9 112
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02	7771	7902	8034	8165	8297	8428	8560	8691	8823	8954		1 13
03	9086	9217	9349	9480	9612	9743	9875	0006	0137	0269		2 26 3 40
04	5190400	0532	0663	0795	0926	1058	1189	1320	1452	1583		4 53
05	1715	1846	1977	2109	2240	2372	2503	2634	2766	2897		5 66
06	3028	3160	3291	3423	3554	3685	3817	3948	4079	4211		6 79
07	4342	4473	4605	4736	4867	4999	5130	5261	5392	5524		7 92
08	5655	5786	5918	6049	6180	6311	6443	6574	6705	6836		8 106 9 119
09	6968	7099	7230	7361	7493	7624	7755	7886	8018	8149		
3310	8280	8411	8542	8674	8805	8936	9067	9198	9329	9461		
11	9592	9723	9854	9985	0116	0248	0379	0510	0641	0772		
12	5200903	1034	1166	1297	1428	1559	1690	1821	1952	2083		
13	2214	2345	2477	2608	2739	2870	3001	3132	3263	3394		
14	3525	3656	3787	3918	4049	4180	4311	4442	4573	4704	131	
15	4835	4966	5097	5228	5359	5490	5621	5752	5883	6014		
16	6145	6276	6407	6538	6669	6800	6931	7062	7193	7324		
17	7455	7586	7717	7847	7978	8109	8240	8371	8502	8633		
18	8764	8895	9026	9156	9287	9418	9549	9680	9811	9942		
19	5210073	0203	0334	0465	0596	0727	0858	0988	1119	1250		
3320	1381	1512	1642	1773	1904	2035	2166	2296	2427	2558		
21	2689	2820	2950	3081	3212	3343	3473	3604	3735	3866		131
22	3996	4127	4258	4388	4519	4650	4781	4911	5042	5173		1 13
23	5303	5434	5565	5695	5826	5957	6088	6218	6349	6479		2 26
24	6610	6741	6871	7002	7133	7263	7394	7525	7655	7786		3 39
25	7916	8047	8178	8308	8439	8570	8700	8831	8961	9092		4 52 5 66
26	9222	9353	9484	9614	9745	9875	0006	0136	0267	0397		6 79
27	5220528	0659	0789	0920	1050	1181	1311	1442	1572	1703		7 92
28	1833	1964	2094	2225	2355	2486	2616	2747	2877	3007		8 105
29	3138	3268	3399	3529	3660	3790	3921	4051	4181	4312		9 118
3330	4442	4573	4703	4834	4964	5094	5225	5355	5486	5616		
31	5746	5877	6007	6137	6268	6398	6529	6659	6789	6920		
32	7050	7180	7311	7441	7571	7702	7832	7962	8093	8223		
33	8353	8483	8614	8744	8874	9005	9135	9265	9395	9526		
34	9656	9786	9916	0047	0177	0307	0437	0568	0698	0828		
35	5230958	1089	1219	1349	1479	1609	1740	1870	2000	2130		
36	2260	2391	2521	2651	2781	2911	3041	3172	3302	3432		
37	3562	3692	3822	3952	4083	4213	4343	4473	4603	4733		
38	4863	4993	5124	5254	5384	5514	5644	5774	5904	6034		
39	6164	6294	6424	6554	6684	6814	6945	7075	7205	7335		
3340	7465	7595	7725	7855	7985	8115	8245	8375	8505	8635		
41	8765	8895	9025	9155	9285	9415	9545	9675	9805	9935		
42	5240064	0194	0324	0454	0584	0714	0844	0974	1104	1234		130
43	1364	1494	1624	1753	1883	2013	2143	2273	2403	2533		1 13
44	2663	2793	2922	3052	3182	3312	3442	3572	3702	3831		2 26 3 39
45	3961	4091	4221	4351	4481	4610	4740	4870	5000	5130		4 52
46	5259	5389	5519	5649	5779	5908	6038	6168	6298	6427	130	5 65
47	6557	6687	6817	6946	7076	7206	7336	7465	7595	7725		6 78
48	7854	7984	8114	8244	8373	8503	8633	8762	8892	9022		7 91 8 104
49	9151	9281	9411	9540	9670	9800	9929	0059	0189	0318		9 117
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3507	3629	3751	3874	3996	4118	4240	4363	4485	4607		122
4730	4852	4974	5096	5219	5341	5463	5585	5708	5830		1 12
5952	6074	6197	6319	6441	6563	6685	6808	6930	7052		2 24
7174	7296	7419	7541	7663	7785	7907	8030	8152	8274		3 37 4 49
8396	8518	8640	8763	8885	9007	9129	9251	9373	9495		5 61
9618	9740	9862	9984	$\overline{0}106$	0228	0350	0472	0594	0717		6 73
5510839	0961	1083	1205	1327	1449	1571	1693	1815	1937		7 85
2059	2181	2304	2426	2548	2670	2792	2914	3036	3158	122	8 98 9 110
3280	3402	3524	3646	3768	3890	4012	4134	4256	4378		
4500	4622	4744	4866	4988	5110	5232	5354	5476	5598		
5720	5842	5964	6086	6208	6329	6451	6573	6695	6817		
6939	7061	7183	7305	7427	7549	7671	7793	7914	8036		
8158	8280	8402	8524	8646	8768	8890	9011	9133	9255		
9377	9499	9621	9743	9864	9986	$\overline{0}108$	0230	0352	0474		
5520595	0717	0839	0961	1083	1204	1326	1448	1570	1692		
1813	1935	2057	2179	2301	2422	2544	2666	2788	2909		
3031	3153	3275	3396	3518	3640	3762	3883	4005	4127		
4248	4370	4492	4614	4735	4857	4979	5100	5222	5344		
5465	5587	5709	5831	5952	6074	6196	6317	6439	6561		
6682	6804	6925	7047	7169	7290	7412	7534	7655	7777		
7899	8020	8142	8263	8385	8507	8628	8750	8871	8993		
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5530330	0452	0573	0695	0816	0938	1059	1181	1302	1424		
1545	1667	1789	1910	2032	2153	2275	2396	2517	2639		
2760	2882	3003	3125	3246	3368	3489	3611	3732	3854		
3975	4097	4218	4339	4461	4582	4704	4825	4947	5068		
5189	5311	5432	5554	5675	5796	5918	6039	6161	6282		
6403	6525	6646	6767	6889	7010	7132	7253	7374	7496		
7617	7738	7860	7981	8102	8224	8345	8466	8588	8709		
8830	8952	9073	9194	9315	9437	9558	9679	9801	9922		
5540043	0164	0286	0407	0528	0650	0771	0892	1013	1135		
1256	1377	1498	1620	1741	1862	1983	2104	2226	2347		
2468	2589	2710	2832	2953	3074	3195	3316	3438	3559		
3680	3801	3922	4044	4165	4286	4407	4528	4649	4770		
4892	5013	5134	5255	5376	5497	5618	5740	5861	5982		
6103	6224	6345	6466	6587	6708	6829	6951	7072	7193		
7314	7435	7556	7677	7798	7919	8040	8161	8282	8403		
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5550944	1065	1186	1307	1428	1549	1670	1791	1912	2033		
2154	2275	2396	2517	2638	2759	2880	3001	3121	3242		
3363	3484	3605	3726	3847	3968	4089	4210	4330	4451		121
4572	4693	4814	4935	5056	5176	5297	5418	5539	5660		1 12
5781	5902	6022	6143	6264	6385	6506	6627	6747	6868		2 24 3 36
6981	7110	7231	7351	7472	7593	7714	7835	7955	8076		4 48
8197	8318	8438	8559	8680	8801	8921	9042	9163	9284		5 61
9401	9525	9646	9767	9887	$\overline{0}008$	0129	0249	0370	0491		6 73
5560312	0732	0853	0974	1094	1215	1336	1456	1577	1698		7 85 8 97
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01	6066	6194	6322	6449	6577	6705	6832	0960	7088	7215		128
02	7343	7471	7598	7726	7854	7981	8109	8237	8364	8492		1 13
03	8619	8747	8875	9002	9130	9258	9385	9513	9640	9768		2 26
04	[illegible]	0̄023	0151	0278	0406	0533	0661	0789	0916	1044		3 38 4 51
05	5321171	1299	1426	1554	1681	1809	1936	2064	2191	2319		5 64
06	2446	2574	2701	2829	[illegible]	3084	3211	3339	3466	3594		6 77
07	3721	3849	3976	4104	4231	4359	4486	4614	4741	4868		7 90
08	4996	5123	5251	5378	5506	5633	5760	5888	6015	6143		8 102
09	6270	6397	6525	6652	6780	6907	7034	7162	7289	7416		9 115
3410	7544	7671	7799	7926	8053	8181	8308	8435	8563	8690		
11	8817	8945	9072	9199	[illegible]	9454	9581	9708	9836	[illegible]		
12	5330090	0218	0345	0472	0599	0727	0854	0981	1108	1236		
13	1363	1490	1617	1745	1872	1999	2126	2254	2381	2508		
14	2635	2762	2890	3017	3144	3271	3398	3526	3653	3780		
15	3907	4034	4161	4289	4416	4543	4670	4797	4924	5051		
16	5179	5306	5433	5560	5687	5814	5941	6068	6196	6323		
17	6450	6577	6704	6831	6958	7085	7212	7339	7466	7594		
18	7721	7848	7975	8102	8229	8356	8483	8610	8737	[illegible]		
19	8991	9118	9245	9372	9499	9626	9753	9880	0̄007	0134	127	
3420	5340261	0388	0515	0642	0769	0896	1023	1150	1277	1404		
21	1531	1658	1785	1912	2039	2165	2292	2419	2546	[illegible]		
22	2800	2927	3054	3181	3308	3435	3561	3688	3815	[illegible]		127
23	4069	4196	4323	4450	4576	4703	4830	4957	5084	5211		1 13
24	5338	5464	5591	5718	5845	5972	6099	6225	6352	6479		2 25 3 38
25	6606	6733	6859	6986	7113	7240	7366	7493	7620	7747		4 51
26	7874	8000	8127	8254	8381	8507	8634	8761	8888	9014		5 64 6 76
27	9141	9268	9394	9521	9648	9775	9901	0̄028	0155	0281		7 89
28	5350408	0535	0662	0788	0915	1042	1168	1295	1422	1548		8 102
29	1675	1802	1928	2055	2181	2308	2435	2561	2088	2815		9 114
3430	2941	3068	3194	3321	3448	3574	3701	3827	3954	4081		
31	4207	4334	4460	4587	4713	4840	4967	5093	5220	5346		
32	5473	5599	5726	5852	5979	6105	6232	6359	6485	6612		
33	6738	6865	6991	7118	7244	7371	7497	7623	7750	7876		
34	8003	8129	8256	8382	8509	8635	8762	8888	9015	9141		
35	9267	9394	9520	9647	9773	9900	0̄026	0152	0279	0405		
36	5360532	0658	0784	0911	1037	1163	1290	1416	1543	1669		
37	1795	1922	2048	2174	2301	2427	2553	2680	2806	2932		
38	3059	3185	3311	3438	3564	3690	3817	3943	4069	4195		
39	4322	4448	4574	4701	4827	4953	5079	5206	5332	5458		
3440	5584	5711	5837	5965	6089	6216	6342	6468	6594	6721		
41	6847	6973	7099	7225	7352	7478	7604	7730	7856	7982		
42	8109	8235	8361	8487	8613	8739	8866	8992	9118	9244		126
43	9370	9496	9622	9747	9875	0̄001	0127	0253	0379	0505		1 13
44	5370631	0758	0884	1010	1136	1262	1388	1514	1640	1766		2 25 3 38
45	1892	2018	2144	2270	2396	2523	2649	2775	2901	3027		4 50
46	3153	3279	3405	3531	3657	3783	3909	4035	4161	4287	126	5 63
47	4413	4539	4665	4791	4917	5043	5169	5295	5421	5547		6 76 7 88
48	5673	5799	5924	6050	6176	6302	6428	6554	6680	6806		8 101
49	6932	7058	7184	7310	7436	7561	7687	7813	7939	8065		9 113
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52	5308	5427	5546	5664	5783	5902	6021	6140	6259	6378		1 12
53	6497	6616	6734	6853	6972	7091	7210	7329	7448	7567		2 24
54	7685	7804	7923	8042	8161	8280	8398	8517	8636	8755		3 36 4 48
55	8874	8993	9111	9230	9349	9468	9587	9705	9824	9943		5 60
56	5630062	0181	0299	0418	0537	0656	0775	0893	1012	1131		6 71
57	1250	1368	1487	1606	1725	1843	1962	2081	2200	2318		7 83
58	2437	2556	2674	2793	2912	3031	3149	3268	3387	3505		8 95
59	3624	3743	3861	3980	4099	4218	4336	4455	4574	4692		9 107
3660	4811	4930	5048	5167	5285	5404	5523	5641	5760	5879		
61	5997	6116	6235	6353	6472	6590	6709	6828	6946	7065		
62	7183	7302	7421	7539	7658	7776	7895	8013	8132	8251		
63	8369	8488	8606	8725	8843	8962	9081	9199	9318	9436		
64	9555	9673	9792	9910	$\bar{0}029$	0147	0266	0384	0503	0621		
65	5640740	0858	0977	1095	1214	1332	1451	1569	1688	1806		
66	1925	2043	2162	2280	2398	2517	2635	2754	2872	2991		
67	3109	3228	3346	3464	3583	3701	3820	3938	4056	4175		
68	4293	4412	4530	4648	4767	4885	5004	5122	5240	5359		
69	5477	5595	5714	5832	5951	6069	6187	6306	6424	6542		
3670	6661	6779	6897	7016	7134	7252	7371	7489	7607	7726		
71	7844	7962	8080	8199	8317	8435	8554	8672	8790	8908		
72	9027	9145	9263	9382	9500	9618	9736	9855	9973	$\bar{0}091$		
73	5650209	0328	0446	0564	0682	0800	0919	1037	1155	1273		
74	1392	1510	1628	1746	1864	1983	2101	2219	2337	2455		
75	2573	2692	2810	2928	3046	3164	3282	3401	3519	3637		
76	3755	3873	3991	4109	4228	4346	4464	4582	4700	4818		
77	4936	5054	5173	5291	5409	5527	5645	5763	5881	5999		
78	6117	6235	6353	6471	6590	6708	6826	6944	7062	7180		
79	7298	7416	7534	7652	7770	7888	8006	8124	8242	8360	118	
3680	8478	8596	8714	8832	8950	9068	9186	9304	9422	9540		
81	9658	9776	9894	$\bar{0}012$	0130	0248	0366	0484	0602	0720		
82	5660838	0956	1074	1192	1310	1428	1545	1663	1781	1899		
83	2017	2135	2253	2371	2489	2607	2725	2843	2960	3078		
84	3196	3314	3432	3550	3668	3786	3903	4021	4139	4257		
85	4375	4493	4611	4728	4846	4964	5082	5200	5318	5435		
86	5553	5671	5789	5907	6025	6142	6260	6378	6496	6614		
[illegible]	6731	6849	6967	7085	7203	7320	7438	7556	7674	7791		
88	7909	8027	8145	8262	8380	8498	8616	8733	8851	8969		
89	9087	9204	9322	9440	9557	9675	9793	9911	$\bar{0}028$	0146		
3690	5670264	0381	0499	0617	0734	0852	0970	1087	1205	1323		
91	1440	1558	1676	1793	1911	2029	2146	2264	2382	2499		
92	2617	2735	2852	2970	3087	3205	3323	3440	3558	3675		118
93	3793	3911	4028	4146	4263	4381	4499	4616	4734	4851		1 12
94	4969	5086	5204	5322	5439	5557	5674	5792	5909	6027		2 24 3 35
95	6144	6262	6379	6497	6615	6732	6850	6967	7085	7202		4 47
96	7320	7437	7555	7672	7790	7907	8025	8142	8260	8377		5 59
97	8495	8612	8729	8847	8964	9082	9199	9317	9434	9552		6 71 7 83
98	9669	9787	9904	$\bar{0}021$	0139	0256	0374	0491	0608	0726		8 94
99	5680843	0961	1078	1196	1313	1430	1548	1665	1782	1900		9 106
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02	3161	3285	3409	3533	3657	3781	3905	4029	4153	4277		1 12
03	4401	4525	4649	4773	4897	5021	5145	5269	5393	5517	124	2 25
04	5641	5765	5889	6013	6137	6261	6385	6508	6632	6756		3 37 4 50
05	6880	7004	7128	7252	7376	7500	7624	7747	7871	7995		5 62
06	8119	8243	8367	8491	8615	8738	8862	8986	9110	9234		6 74
07	9358	9481	9605	9729	9853	9977	$\overline{0}$101	0224	0348	0472		7 87
08	5450596	0720	0843	0967	1091	1215	1339	1462	1586	1710		8 99 9 112
09	1834	1957	2081	2205	2329	2452	2576	2700	2824	2947		
3510	3071	3195	3319	3442	3566	3690	3813	3937	4061	4185		
11	4308	4432	4556	4679	4803	4927	5050	5174	5298	5421		
12	5545	5669	5792	5916	6040	6163	6287	6411	6534	6658		
13	6781	6905	7029	7152	7276	7400	7523	7647	7770	7894		
14	8018	8141	8265	8388	8512	8635	8759	8883	9006	9130		
15	9253	9377	9500	9624	9747	9871	9995	$\overline{0}$118	0242	0365		
16	5460489	0612	0736	0859	0983	1106	1230	1353	1477	1600		
17	1724	1847	1971	2094	2218	2341	2465	2588	2711	2835		
18	2958	3082	3205	3329	3452	3576	3699	3822	3946	4069		
19	4193	4316	4439	4563	4686	4810	4933	5056	5180	5303		
3520	5427	5550	5673	5797	5920	6043	6167	6290	6414	6537		
21	6660	6784	6907	7030	7154	7277	7400	7524	7647	7770		123
22	7894	8017	8140	8263	8387	8510	8633	8757	8880	9003		1 12
23	9126	9250	9373	9496	9620	9743	9866	9989	$\overline{0}$113	0236		2 25 3 37
24	5470359	0482	0605	0729	0852	0975	1098	1222	1345	1468		4 49
25	1591	1714	1838	1961	2084	2207	2330	2454	2577	2700		5 62
26	2823	2946	3069	3193	3316	3439	3562	3685	3808	3931		6 74
27	4055	4178	4301	4424	4547	4670	4793	4916	5040	5163		7 86
28	5286	5409	5532	5655	5778	5901	6024	6147	6270	6394		8 98 9 111
29	6517	6640	6763	6886	7009	7132	7255	7378	7501	7624		
3530	7747	7870	7993	8116	8239	8362	8485	8608	8731	8854	123	
31	8977	9100	9223	9346	9469	9592	9715	9838	9961	$\overline{0}$084		
32	5480207	0330	0453	0576	0699	0822	0945	1068	1191	1313		
33	1436	1559	1682	1805	1928	2051	2174	2297	2420	2543		
34	2665	2788	2911	3034	3157	3280	3403	3526	3648	3771		
35	3894	4017	4140	4263	4386	4508	4631	4754	4877	5000		
36	5123	5245	5368	5491	5614	5737	5859	5982	6105	6228		
37	6351	6473	6596	6719	6842	6964	7087	7210	7333	7456		
38	7578	7701	7824	7947	8069	8192	8315	8437	8560	8683		
39	8806	8928	9051	9174	9296	9419	9542	9665	9787	9910		
3540	5490033	0155	0278	0401	0523	0646	0769	0891	1014	1137		
41	1259	1382	1505	1627	1750	1872	1995	2118	2240	2363		
42	2486	2608	2731	2853	2976	3099	3221	3344	3466	3589		122
43	3712	3834	3957	4079	4202	4324	4447	4569	4692	4815		1 12 2 24
44	4937	5060	5182	5305	5427	5550	5672	5795	5917	6040		3 37
45	6162	6285	6407	6530	6652	6775	6897	7020	7142	7265		4 49
46	7387	7510	7632	7755	7877	8000	8122	8245	8367	8489		5 61 6 73
47	8612	8734	8857	8979	9102	9224	9346	9469	9591	9714		7 85
48	9836	9959	$\overline{0}$081	0203	0326	0448	0570	0693	0815	0938		8 98
49	5501060	1182	1305	1427	1549	1672	1794	1917	2039	2161		9 110
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51	3507	3629	3751	3874	3996	4118	4210	4363	4485	4607		122
52	4730	4852	4974	5096	5219	5341	5463	5585	5708	5830		1 12
53	5952	6074	6197	6319	6441	6563	6685	6808	6930	7052		2 24
54	7174	7296	7419	7541	7663	7785	7907	8030	8152	8274		3 37; 4 49
55	8396	8518	8640	8763	8385	9007	9129	9251	9373	9495		5 61
56	9618	9740	9862	9984	$\overline{0}$106	0228	0350	0472	0594	0717		6 73
57	5510839	0961	1083	1205	1327	1449	1571	1693	1815	1937		7 85
58	2059	2181	2304	2426	2548	2670	2792	2914	3036	3158	122	8 98
59	3280	3402	3524	3046	3768	3890	4012	4134	4256	4378		9 110
3560	4500	4622	4744	4866	4988	5110	5232	5354	5476	5598		
61	5720	5842	5964	6086	6208	6329	6451	6573	6695	6817		
62	6939	7061	7183	7305	7427	7549	7671	7793	7914	8036		
63	8158	8280	8402	8524	8646	8768	8890	9011	9133	9255		
64	9377	9499	9621	9743	9864	9986	$\overline{0}$108	0230	0352	0474		
65	5520595	0717	0839	0961	1083	1204	1326	1448	1570	1692		
66	1813	1935	2057	2179	2301	2422	2544	2666	2788	2909		
67	3031	3153	3275	3396	3518	3640	3762	3883	4005	4127		
68	4248	4370	4492	4614	4735	4857	4979	5100	5222	5344		
69	5465	5587	5709	5831	5952	6074	6196	6317	6439	6561		
3570	6682	6804	6925	7047	7169	7290	7412	7534	7655	7777		
71	7899	8020	8142	8263	8385	8507	8628	8750	8871	8993		
72	9115	9236	9358	9479	9601	9722	9814	9965	$\overline{0}$087	0209		
73	5530330	0452	0573	0695	0816	0938	1059	1181	1302	1424		
74	1545	1667	1789	1910	2032	2153	2275	2396	2517	2639		
75	2760	2882	3003	3125	3246	3368	3489	3611	3732	3854		
76	3975	4097	4218	4339	4461	4582	4704	4825	4947	5068		
77	5189	5311	5432	5554	5675	5796	5918	6039	6161	6282		
78	6403	6525	6646	6767	6889	7010	7132	7253	7374	7496		
79	7617	7738	7860	7981	8102	8224	8345	8466	8588	8709		
3580	8830	8952	9073	9194	9315	9437	9558	9679	9801	9922		
81	5540043	0164	0286	0407	0528	0650	0771	0892	1013	1135		
82	1256	1377	1498	1620	1741	1862	1983	2104	2226	2347		
83	2468	2589	2710	2832	2953	3074	3195	3316	3438	3559		
84	3680	3801	3922	4044	4165	4286	4407	4528	4649	4770		
85	4892	5013	5134	5255	5376	5497	5618	5740	5861	5982		
86	6103	6224	6345	6466	6587	6708	6829	6951	7072	7193		
87	7314	7435	7556	7677	7798	7919	8040	8161	8282	8403		
88	8524	8645	8766	8887	9008	9130	9251	9372	9493	9614		
89	9735	9856	9977	$\overline{0}$098	0219	0340	0461	0582	0703	0824	121	
3590	5550944	1065	1186	1307	1428	1549	1670	1791	1912	2033		
91	2154	2275	2396	2517	2638	2759	2880	3001	3121	3242		
92	3363	3484	3605	3726	3847	3968	4089	4210	4330	4451		121
93	4572	4693	4814	4935	5056	5176	5297	5418	5539	5660		1 12
94	5781	5902	6022	6143	6264	6385	6506	6627	6747	6868		2 24; 3 36
95	6989	7110	7231	7351	7472	7593	7714	7835	7955	8076		4 48
96	8197	8318	8438	8559	8680	8801	8921	9042	9163	9284		5 61
97	9404	9525	9646	9767	9887	$\overline{0}$008	0129	0249	0370	0491		6 73
98	5560612	0732	0853	0974	1094	1215	1336	1456	1577	1698		7 85
99	1818	1939	2060	2180	2301	2422	2542	2663	2784	2904		8 97; 9 109
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01	4231	4352	4472	4593	4714	4834	4955	5075	5196	5317		121
02	5437	5558	5678	5799	5919	6040	6160	6281	6402	6522		1 12
03	6643	6763	6884	7004	7125	7245	7366	7486	7607	7727		2 24
04	7848	7968	8089	8209	8330	8450	8571	8691	8812	8932		3 36 4 48
05	9053	9173	9294	9414	9535	9655	9775	9896	$\bar{0}$016	0137		5 61
06	5570257	0378	0498	0619	0739	0859	0980	1100	1221	1341		6 73
07	1461	1582	1702	1823	1943	2063	2184	2304	2425	2545		7 85
08	2665	2786	2906	3026	3147	3267	3387	3508	3628	3748		8 97
09	3869	3989	4109	4230	4350	4470	4591	4711	4831	4952		9 109
3610	5072	5192	5313	5433	5553	5673	5794	5914	6034	6155		
11	6275	6395	6515	6636	6756	6876	6996	7117	7237	7357		
12	7477	7598	7718	7838	7958	8079	8199	8319	8439	8559		
13	8680	8800	8920	9040	9160	9281	9401	9521	9641	9761		
14	9881	$\bar{0}$002	0122	0242	0362	0482	0602	0723	0843	0963		
15	5581083	1203	1323	1443	1564	1684	1804	1924	2044	2164		
16	2284	2404	2524	2645	2765	2885	3005	3125	3245	3365		
17	3485	3605	3725	3845	3965	4085	4205	4325	4446	4566	120	
18	4686	4806	4926	5046	5166	5286	5406	5526	5646	5766		
19	5886	6006	6126	6246	6366	6486	6606	6726	6846	6966		
3620	7086	7206	7326	7446	7566	7686	7805	7925	8045	8165		
21	8285	8405	8525	8645	8765	8885	9005	9125	9245	9365		
22	9484	9604	9724	9844	9964	$\bar{0}$084	0204	0324	0444	0563		
23	5590683	0803	0923	1043	1163	1283	1403	1522	1642	1762		
24	1882	2002	2122	2241	2361	2481	2601	2721	2840	2960		
25	3080	3200	3320	3440	3559	3679	3799	3919	4038	4158		
26	4278	4398	4518	4637	4757	4877	4997	5116	5236	5356		
27	5476	5595	5715	5835	5954	6074	6194	6314	6433	6553		
28	6673	6792	6912	7032	7152	7271	7391	7511	7630	7750		
29	7870	7989	8109	8229	8348	8468	8588	8707	8827	8947		
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31	5600262	0382	0502	0621	0741	0860	0980	1100	1219	1339		
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33	2654	2774	2893	3013	3132	3252	3371	3491	3610	3730		
34	3849	3969	4088	4208	4327	4447	4566	4686	4805	4925		
35	5044	5164	5283	5403	5522	5641	5761	5880	6000	6119		
36	6239	6358	6478	6597	6716	6836	6955	7075	7194	7314		
37	7433	7552	7672	7791	7911	8030	8149	8269	8388	8508		
38	8627	8746	8866	8985	9104	9224	9343	9463	9582	9701		
39	9821	9940	$\bar{0}$059	0179	0298	0417	0537	0656	0775	0895		
3640	5611014	1133	1252	1372	1491	1610	1730	1849	1968	2088		
41	2207	2326	2445	2565	2684	2803	2922	3042	3161	3280		
42	3399	3519	3638	3757	3876	3996	4115	4234	4353	4472		120
43	4592	4711	4830	4949	5069	5188	5307	5426	5545	5665		1 12
44	5784	5903	6022	6141	6260	6380	6499	6618	6737	6856		2 24 3 36
45	6975	7094	7214	7333	7452	7571	7690	7809	7928	8048		4 48
46	8167	8286	8405	8524	8643	8762	8881	9000	9119	9239		5 60
47	9358	9477	9596	9715	9834	9953	$\bar{0}$072	0191	0310	0429		6 72
48	5620548	0667	0786	0905	1024	1144	1263	1382	1501	1620		7 84 8 96
49	1739	1858	1977	2096	2215	2334	[illegible]	2572	2691	2810	119	9 108
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6863	6976	7088	7201	7314	7426	7539	7652	7765	7877		1 11
7990	8103	8216	8328	8441	8554	8666	8779	8892	9004		2 23
9117	9230	9342	9455	9568	9681	9793	9906	0019	0131		3 34
5860244	0356	0469	0582	0694	0807	0920	1032	1145	1258		4 45
1370	1483	1596	1708	1821	1933	2046	2159	2271	2384		5 57
2496	2609	2722	2834	2947	3059	3172	3285	3397	3510		6 68
3622	3735	3847	3960	4072	4185	4298	4410	4523	4635		7 79
4748	4860	4973	5085	5198	5310	5423	5535	5648	5761		8 90
5873	5986	6098	6211	6323	6436	6548	6661	6773	6886		9 102
6998	7110	7223	7335	7448	7560	7673	7785	7898	8010		
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9247	9360	9472	9584	9697	9809	9922	0034	0146	0259		
5870371	0484	0596	0708	0821	0933	1045	1158	1270	1383		
1495	1607	1720	1832	1944	2057	2169	2281	2394	2506		
2618	2731	2843	2955	3068	3180	3292	3405	3517	3629		
3742	3854	3966	4079	4191	4303	4416	4528	4640	4752		
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8232	8344	8456	8568	8680	8793	8905	9017	9129	9241		
9353	9466	9578	9690	9802	9914	0026	0139	0251	0363		
5880475	0587	0699	0811	0923	1036	1148	1260	1372	1484		
1596	1708	1820	1932	2045	2157	2269	2381	2493	2605		
2717	2829	2941	3053	3165	3277	3389	3502	3614	3726		
3838	3950	4062	4174	4286	4398	4510	4622	4734	4846	112	
4958	5070	5182	5294	5406	5518	5630	5742	5854	5966		
6078	6190	6302	6414	6526	6638	6750	6862	6974	7086		
7198	7310	7422	7534	7646	7758	7870	7981	8093	8205		
8317	8429	8541	8653	8765	8877	8989	9101	9213	9325		
9436	9548	9660	9772	9884	9996	0108	0220	0332	0443		
5890555	0667	0779	0891	1003	1115	1227	1338	1450	1562		
1674	1786	1898	2009	2121	2233	2345	2457	2569	2680		
2792	2904	3016	3128	3239	3351	3463	3575	3687	3798		
3910	4022	4134	4246	4357	4469	4581	4693	4804	4916		
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7263	7374	7486	7598	7709	7821	7933	8044	8156	8268		
8379	8491	8603	8714	8826	8938	9049	9161	9273	9384		
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5900612	0724	0836	0947	1059	1170	1282	1394	1505	1617		1 11
1728	1840	1951	2063	2175	2286	2398	2509	2621	2732		2 22
2844	2956	3067	3179	3290	3402	3513	3625	3736	3848		3 34
3959	4071	4183	4294	4406	4517	4629	4740	4852	4963		4 45
5075	5186	5298	5409	5521	5632	5744	5855	5967	6078		5 56
6189	6301	6412	6524	6635	6747	6858	6970	7081	7193		6 67
7304	7415	7527	7638	7750	7861	7973	8084	8196	8307		7 78
8418	8530	8641	8753	8864	8975	9087	9198	9310	9421		8 90
9532	9644	9755	9866	9978	0089	0201	0312	0423	0535		9 101
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02	2873	2984	3095	3207	3318	3429	3540	3652	3763	3874		1 11
03	3986	4097	4208	4319	4431	4542	4653	4764	4876	4987		2 2.
04	5098	5209	5321	5432	5543	5654	5765	5877	5988	6099		3 3. 4 4.
05	6210	6322	6433	6544	6655	6766	6878	6989	7100	7211		5 5
06	7322	7434	7545	7656	7767	7878	7989	8101	8212	8323		6 6
07	8434	8545	8656	8768	8879	8990	9101	9212	9323	9434		7 7 8 8
08	9546	9657	9768	9879	9990	$\bar{0}$101	0212	0323	0434	0546		9 10
09	5920657	0768	0879	0990	1101	1212	1323	1434	1545	1656		
3910	1768	1879	1990	2101	2212	2323	2434	2545	2656	2767		
11	2878	2989	3100	3211	3322	3433	3544	3655	3766	3877	111	
12	3988	4099	4210	4321	4433	4544	4655	4766	4876	4987		
13	5098	5209	5320	5431	5542	5653	5764	5875	5986	6097		
14	6208	6319	6430	6541	6652	6763	6874	6985	7096	7207		
15	7318	7429	7540	7650	7761	7872	7982	8094	8205	8316		
16	8427	8538	8649	8760	8870	8981	9092	9203	9314	9425		
17	9536	9647	9757	9868	9979	$\bar{0}$090	0201	0312	0423	0533		
18	5930644	0755	0866	0977	1088	1199	1309	1420	1531	1642		
19	1753	1863	1974	2085	2196	2307	2417	2528	2639	2750		
3920	2861	2971	3082	3193	3304	3415	3525	3636	3747	3858		
21	3968	4079	4190	4301	4411	4522	4633	4744	4854	4965		
22	5076	5187	5297	5408	5519	5630	5740	5851	5962	6072		
23	6183	6294	6404	6515	6626	6737	6847	6958	7069	7179		
24	7290	7401	7511	7622	7733	7843	7954	8065	8175	8286		
25	8397	8507	8618	8729	8839	8950	9060	9171	9282	9392		
26	9503	9614	9724	9835	9945	$\bar{0}$056	0167	0277	0388	0498		
27	5940609	0720	0830	0941	1051	1162	1273	1383	1494	1604		
28	1715	1825	1936	2046	2157	2268	2378	2489	2599	2710		
29	2820	2931	3041	3152	3262	3373	3483	3594	3704	3815		
3930	3926	4036	4147	4257	4368	4478	4588	4699	4809	4920		
31	5030	5141	5251	5362	5472	5583	5693	5804	5914	6025		
32	6135	6246	6356	6466	6577	6687	6798	6908	7019	7129		
33	7239	7350	7460	7571	7681	7792	7902	8012	8123	8233		
34	8344	8454	8564	8675	8785	8895	9006	9116	9227	9337		
35	9447	9558	9668	9778	9889	9994	$\bar{0}$110	0220	0330	0441		
36	5950551	0661	0772	0882	0992	1103	1213	1323	1434	1544		
37	1654	1764	1875	1985	2095	2206	2316	2426	2537	2647		
38	2757	2867	2978	3088	3198	3308	3419	3529	3639	3750		
39	3860	3970	4080	4191	4301	4411	4521	4632	4742	4852		
3940	4962	5072	5183	5293	5403	5513	5624	5734	5844	5954		
41	6064	6175	6285	6395	6505	6615	6725	6836	6946	7056		
42	7166	7276	7387	7497	7607	7717	7827	7937	8047	8158		11
43	8268	8378	8488	8598	8708	8818	8929	9039	9149	9259		1 1
44	9369	9479	9589	9699	9810	9920	$\bar{0}$030	0140	0250	0360		2 2 3 3
45	5960470	0580	0690	0800	0910	1020	1131	1241	1351	1461		4 4
46	1571	1681	1791	1901	2011	2121	2231	2341	2451	2561	110	5 5 6 6
47	2671	2781	2891	3001	3111	3221	3331	3441	3551	3661		7 7
48	3771	3881	3991	4101	4211	4321	4431	4541	4651	4761		8 8
49	4871	4981	5091	5201	5311	5421	5531	5641	5751	5861		9 10
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7070	7180	7290	7400	7510	7620	7730	7840	7950	8059		110
8169	8279	8389	8499	8609	8719	8829	8939	9048	9158		1 11
9268	9378	9488	9598	9708	9817	9927	$\overline{0}037$	0147	0257		2 22
5970367	0476	0586	0696	0806	0916	1026	1135	1245	1355		3 33 4 44
1465	1575	1684	1794	1904	2014	2124	2233	2343	2453		5 55
2563	2673	2782	2892	3002	3112	3221	3331	3441	3551		6 66 7 77
3661	3770	3880	3990	4099	4209	4319	4429	4538	4648		8 88
4758	4868	4977	5087	5197	5306	5416	5526	5636	5745		9 99
5855	5965	6074	6184	6294	6403	6513	6623	6733	6842		
6952	7062	7171	7281	7391	7500	7610	7719	7829	7939		
8048	8158	8268	8377	8487	8597	8706	8816	8925	9035		
9145	9254	9364	9474	9583	9693	9802	9912	$\overline{0}022$	0131		
5980241	0350	0460	0569	0679	0789	0898	1008	1117	1227		
1336	1446	1556	1665	1775	1884	1994	2103	2213	2322		
2432	2541	2651	2761	2870	2980	3089	3199	3308	3418		
3527	3637	3746	3856	3965	4075	4184	4294	4403	4513		
4622	4731	4841	4950	5060	5169	5279	5388	5498	5607		
5717	5826	5936	6045	6154	6264	6373	6483	6592	6702		
6811	6920	7030	7139	7249	7358	7467	7577	7686	7796		
7905	8014	8124	8233	8343	8452	8561	8671	8780	8890		
8999	9108	9218	9327	9436	9546	9655	9764	9874	9983		
5990092	0202	0311	0420	0530	0639	0748	0858	0967	1076		
1186	1295	1404	1514	1623	1732	1841	1951	2060	2169		
2279	2388	2497	2606	2716	2825	2934	3044	3153	3262		
3371	3481	3590	3699	3808	3918	4027	4136	4245	4355		
4464	4573	4682	4791	4901	5010	5119	5228	5338	5447		
5556	5665	5774	5884	5993	6102	6211	6320	6429	6539		
6648	6757	6866	6975	7084	7194	7303	7412	7521	7630		
7739	7849	7958	8067	8176	8285	8394	8503	8612	8722		
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9922	$\overline{0}031$	0140	0249	0358	0467	0576	0685	0794	0903		
6001013	1122	1231	1340	1449	1558	1667	1776	1885	1994		
2103	2212	2321	2430	2539	2648	2757	2866	2975	3084	109	
3193	3302	3411	3520	3629	3738	3847	3956	4065	4174		
4283	4392	4501	4610	4719	4828	4937	5046	5155	5264		
5373	5482	5591	5700	5809	5918	6027	6136	6244	6353		
6462	6571	6680	6789	6898	7007	7116	7225	7334	7443		
7551	7660	7769	7878	7987	8096	8205	8314	8423	8531		
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9729	9838	9947	$\overline{0}055$	0164	0273	0382	0491	0600	0708		
6010817	0926	1035	1144	1253	1361	1470	1579	1688	1797		
1905	2014	2123	2232	2340	2449	2558	2667	2776	2884		109
2993	3102	3211	3319	3428	3537	3646	3754	3863	3972		1 11
4081	4189	4298	4407	4516	4624	4733	4842	4950	5059		2 22 3 33
5168	5277	5385	5494	5603	5711	5820	5929	6037	6146		4 44
6255	6363	6472	6581	6690	6798	6907	7016	7124	7233		5 55 6 65
7341	7450	7559	7667	7776	7885	7993	8102	8211	8319		7 76
8428	8537	8645	8754	8862	8971	9080	9188	9297	9405		8 87
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01	8979	9093	9207	9321	9436	9550	9664	9778	9893	0̄007		
02	5800121	0235	0350	0464	0578	0692	0806	0921	1035	1149		115
03	1263	1377	1492	1606	1720	1834	1948	2063	2177	2291		1 12
04	2405	2519	2633	2748	2862	2976	3090	3204	3318	3432	114	2 23; 3 35
05	3547	3661	3775	3889	4003	4117	4231	4346	4460	4574		4 46
06	4688	4802	4916	5030	5144	5258	5372	5487	5601	5715		5 58
07	5829	5943	6057	6171	6285	6399	6513	6627	6741	6855		6 69; 7 81
08	6969	7083	7197	7312	7426	7540	7654	7768	7882	7996		8 92
09	8110	8224	8338	8452	8566	8680	8794	8908	9022	9136		9 104
3810	9250	9364	9478	9592	9706	9820	9934	0̄048	0162	0276		
11	5810389	0503	0617	0731	0845	0959	1073	1187	1301	1415		
12	1529	1643	1757	1871	1985	2099	2212	2326	2440	2554		
13	2668	2782	2896	3010	3124	3238	3351	3465	3579	3693		
14	3807	3921	4035	4148	4262	4376	4490	4604	4718	4832		
15	4945	5059	5173	5287	5401	5515	5628	5742	5856	5970		
16	6084	6197	6311	6425	6539	6653	6766	6880	6994	7108		
17	7222	7335	7449	7563	7677	7790	7904	8018	8132	8245		
18	8359	8473	8587	8700	8814	8928	9042	9155	9269	9383		
19	9497	9610	9724	9838	9951	0̄065	0179	0293	0406	0520		
3820	5820634	0747	0861	0975	1088	1202	1316	1429	1543	1657		
21	1770	1884	1998	2111	2225	2339	2452	2566	2680	2793		
22	2907	3020	3134	3248	3361	3475	3589	3702	3816	3929		
23	4043	4157	4270	4384	4497	4611	4725	4838	4952	5065		
24	5179	5292	5406	5520	5633	5747	5860	5974	6087	6201		
25	6314	6428	6541	6655	6769	6882	6996	7109	7223	7336		
26	7450	7563	7677	7790	7904	8017	8131	8244	8358	8471		
27	8585	8698	8812	8925	9039	9152	9265	9379	9492	9606		
28	9719	9833	9946	0̄060	0173	0287	0400	0513	0627	0740		
29	5830854	0967	1081	1194	1307	1421	1534	1648	1761	1874		
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31	3122	3235	3348	3462	3575	3688	3802	3915	4028	4142		
32	4255	4368	4482	4595	4708	4822	4935	5048	5162	5275		
33	5388	5501	5615	5728	5841	5955	6068	6181	6295	6408		
34	6521	6634	6748	6861	6974	7087	7201	7314	7427	7540		
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36	8786	8899	9012	9126	9239	9352	9465	9578	9692	9805		
37	9918	0̄031	0144	0258	0371	0484	0597	0710	0823	0937		
38	5841050	1163	1276	1389	1502	1615	1729	1842	1955	2068		
39	2181	2294	2407	2520	2634	2747	2860	2973	3086	3199		
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41	4443	4556	4669	4782	4895	5008	5121	5234	5348	5461		
42	5574	5687	5800	5913	6026	6139	6252	6365	6478	6591		114
43	6704	6817	6930	7043	7156	7269	7382	7495	7608	7721	113	1 11
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45	8963	9076	9189	9302	9415	9528	9641	9754	9867	9980		4 46
46	5850093	0206	0319	0432	0544	0657	0770	0883	0996	1109		5 57
47	1222	1335	1448	1561	1673	1786	1899	2012	2125	2238		6 68; 7 80
48	2351	2463	2576	2689	2802	2915	3028	3141	3253	3366		8 91
49	3479	3592	3705	3818	3930	4043	4156	4269	4382	4494		9 103
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8837	8945	9052	9159	9266	9373	9480	9587	9694	9801		3 32 4 43
9909	0016	0123	0230	0337	0444	0551	0658	0765	0872		5 54
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3120	3227	3334	3441	3548	3656	3763	3870	3977	4084	107	8 86
4191	4298	4404	4511	4618	4725	4832	4939	5046	5153		9 96
5260	5367	5474	5581	5688	5795	5902	6009	6116	6223		
6330	6437	6544	6651	6758	6865	6972	7078	7185	7292		
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1674	1781	1887	1994	2101	2208	2315	2421	2528	2635		
2742	2849	2955	3062	3169	3276	3382	3489	3596	3703		
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1921	2027	2133	2240	2346	2452	2558	2665	2771	2877		
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4046	4153	4259	4365	4471	4578	4684	4790	4896	5003		
5109	5215	5321	5428	5534	5640	5746	5852	5959	6065		
6171	6277	6384	6490	6596	6702	6808	6915	7021	7127		
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8295	8401	8507	8613	8719	8826	8932	9038	9144	9250		
9356	9462	9569	9675	9781	9887	9993	0099	0205	0311		106
6120417	0524	0630	0736	0842	0948	1054	1160	1266	1372		1 11
1478	1584	1691	1797	1903	2009	2115	2221	2327	2433		2 21 3 32
2539	2645	2751	2857	2963	3069	3175	3281	3387	3493		4 42
3599	3706	3812	3918	4024	4130	4236	4342	4448	4554	106	5 53
4660	4766	4872	4978	5084	5190	5296	5402	5508	5614		6 64 7 74
5720	5826	5931	6037	6143	6249	6355	6461	6567	6673		8 85
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01	1760	1871	1982	2093	2205	2316	2427	2539	2650	2761		112
02	2873	2984	3095	3207	3318	3429	3540	3652	3763	3874		1 11
03	3986	4097	4208	4319	4431	4542	4653	4764	4876	4987		2 22
04	5098	5209	5321	5432	5543	5654	5765	5877	5988	6099		3 34 4 45
05	6210	6322	6433	6544	6655	6766	6878	6989	7100	7211		5 56
06	7322	7434	7545	7656	7767	7878	7989	8101	8212	8323		6 67
07	8434	8545	8656	8768	8879	8990	9101	9212	9323	9434		7 78
08	9546	9657	9768	9879	9990	$\overline{0}101$	0212	0323	0434	0546		8 90
09	5920657	0768	0879	0990	1101	1212	1323	1434	1545	1656		9 101
3910	1768	1879	1990	2101	2212	2323	2434	2545	2656	2767		
11	2878	2989	3100	3211	3322	3433	3544	3655	3766	3877	111	
12	3988	4099	4210	4321	4433	4544	4655	4766	4876	4987		
13	5098	5209	5320	5431	5542	5653	5764	5875	5986	6097		
14	6208	6319	6430	6541	6652	6763	6874	6985	7096	7207		
15	7318	7429	7540	7650	7761	7872	7983	8094	8205	8316		
16	8427	8538	8649	8760	8870	8981	9092	9203	9314	9425		
17	9536	9647	9757	9868	9979	$\overline{0}090$	0201	0312	0423	0533		
18	5930644	0755	0866	0977	1088	1199	1309	1420	1531	1642		
19	1753	1863	1974	2085	2196	2307	2417	2528	2639	2750		
3920	2861	2971	3082	3193	3304	3415	3525	3636	3747	3858		
21	3968	4079	4190	4301	4411	4522	4633	4744	4854	4965		
22	5076	5187	5297	5408	5519	5630	5740	5851	5962	6072		
23	6183	6294	6404	6515	6626	6737	6847	6958	7069	7179		
24	7290	7401	7511	7622	7733	7843	7954	8065	8175	8286		
25	8397	8507	8618	8729	8839	8950	9060	9171	9282	9392		
26	9503	9614	9724	9835	9945	$\overline{0}056$	0167	0277	0388	0498		
27	5940609	0720	0830	0941	1051	1162	1273	1383	1494	1604		
28	1715	1825	1936	2046	2157	2268	2378	2489	2599	2710		
29	2820	2931	3041	3152	3262	3373	3483	3594	3704	3815		
3930	3926	4036	4147	4257	4368	4478	4588	4699	4809	4920		
31	5030	5141	5251	5362	5472	5583	5693	5804	5914	6025		
32	6135	6246	6356	6466	6577	6687	6798	6908	7019	7129		
33	7239	7350	7460	7571	7681	7792	7902	8012	8123	8233		
34	8344	8454	8564	8675	8785	8895	9006	9116	9227	9337		
35	9447	9558	9668	9778	9889	9999	$\overline{0}110$	0220	0330	0441		
36	5950551	0661	0772	0882	0992	1103	1213	1323	1434	1544		
37	1654	1764	1875	1985	2095	2206	2316	2426	2537	2647		
38	2757	2867	2978	3088	3198	3308	3419	3529	3639	3750		
39	3860	3970	4080	4191	4301	4411	4521	4632	4742	4852		
3940	4962	5072	5183	5293	5403	5513	5624	5734	5844	5954		
41	6064	6175	6285	6395	6505	6615	6725	6836	6946	7056		
42	7166	7276	7387	7497	7607	7717	7827	7937	8047	8158		111
43	8268	8378	8488	8598	8708	8818	8929	9039	9149	9259		1 11
44	9369	9479	9589	9699	9810	9920	$\overline{0}030$	0140	0250	0360		2 22
45	5960470	0580	0690	0800	0910	1020	1131	1241	1351	1461		3 33 4 44
46	1571	1681	1791	1901	2011	2121	2231	2341	2451	2561	110	5 56
47	2671	2781	2891	3001	3111	3221	3331	3441	3551	3661		6 67
48	3771	3881	3991	4101	4211	4321	4431	4541	4651	4761		7 78
49	4871	4981	5091	5201	5311	5421	5531	5641	5751	5861		8 89 9 100
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1527	1632	1737	1841	1946	2050	2155	2260	2364	2469		104
2573	2678	2783	2887	2992	3096	3201	3306	3410	3515		1 10
3619	3724	[illegible]	3933	4038	4142	4247	4351	4456	4560		2 21
4665	4769	4874	4979	5083	5188	5292	5397	5501	5606		3 31 4 42
5710	5815	5919	6024	6128	6233	6337	6442	[illegible]	6651		5 52
6755	6860	6964	7069	7173	7278	7382	7487	7591	7696		6 62
7800	7905	8009	8114	8218	8323	8427	8531	[illegible]	8740		7 73
8845	8949	9054	9158	9263	9367	9471	9576	9680	9785		8 83
9889	9994	0̄008	0202	0307	0411	0516	0620	0725	[illegible]		9 94
3190933	1038	1142	1246	1351	1455	1560	1664	1768	1873		
1977	2082	2186	2290	2395	2499	2603	2708	2812	2916		
3021	3125	3229	3334	3438	3542	3647	3751	3855	3960		
4064	4168	4273	4377	4481	4586	4690	4794	4899	5003		
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6150	6254	6359	6463	6567	6671	6776	6880	6984	7088		
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1361	1465	1569	1673	1777	1881	1985	2090	2194	2298		
2402	2506	2610	2714	2818	2922	3027	3131	3235	3339		
3443	3547	3651	3155	3859	3963	4068	4172	4276	4380		
4484	4588	4692	4796	4900	5004	5108	5212	5316	5420		
5524	5628	5733	5837	5941	6045	6149	6253	6357	6461		
6565	6669	6773	6877	6981	7085	7189	7293	7397	7501	104	
7605	7709	7813	7917	8021	8125	8229	8333	8437	8541		
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1763	1867	1971	2075	2178	2282	2386	2490	2594	2698		
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6230424	0528	0631	0735	0838	0942	1045	1148	1252	1355		7 72
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93	6120417	0524	0630	0736	0842	0948	1054	1160	1266	1372		1 11
94	1478	1584	1691	1797	1903	2009	2115	2221	2327	2433		2 21 3 32
95	2539	2645	2751	2857	2963	3069	3175	3281	3387	3493		4 42
96	3599	3706	3812	3918	4024	4130	4236	4342	4448	4554	106	5 53 6 64
97	4660	4766	4872	4978	5084	5190	5296	5402	5508	5614		7 74
98	5720	5826	5931	6037	6143	6249	6355	6461	6567	6673		8 85
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04	8723	8824	8924	9025	9126	9227	9328	9429	9530	9631	
05	9732	9832	9933	$\bar{0}$034	0135	0236	0337	0438	0539	0639	
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19	3832	3933	4033	4134	4234	4335	4435	4536	[illegible]	[illegible]	
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24	[illegible]	8957	9058	9158	9259	9359	9459	9560	9660	9761	
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26	6360865	0966	[illegible]	1166	1267	[illegible]	1467	1568	1668	1769	
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32	6884	6985	7085	7185	7285	7386	7486	7586	7686	7787	
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34	8889	8989	9089	9190	9290	9390	9490	9590	9691	9791	
35	[illegible]	9991	$\bar{0}$091	0192	0292	0392	0492	0592	0692	0793	
36	6370893	0993	1093	1193	1293	1394	1494	1594	1694	1794	
37	1894	1994	2094	2195	2295	2395	2495	2595	2695	[illegible]	
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54	4665	4769	4874	4979	5083	5188	5292	5397	5501	5606		3 31 4 42
55	5710	5815	5919	6024	6128	6233	6337	6442	6546	6651		5 52
56	6755	6860	6964	7069	7173	7278	7382	7487	7591	7696		6 62
57	7800	7905	8009	8114	8218	8323	8427	8531	8636	8740		7 73
58	8845	8949	9054	9158	9263	9367	9471	9576	9680	9785		8 83
59	9889	9994	0098	0202	0307	0411	0516	0620	0725	0829		9 94
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63	4064	4168	4273	4377	4481	4586	4690	4794	4899	5003		
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78	9684	9788	9892	9996	0100	0204	0308	0412	0516	0620		
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81	2802	2906	3009	3113	3217	3321	3425	3529	3633	3736		
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83	4879	4982	5086	5190	5294	5398	5502	5605	5709	5813		
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85	6955	7058	7162	7266	7370	7473	7577	7681	7785	7888		
86	7992	8096	8200	8303	8407	8511	8615	8718	8822	8926		
87	9030	9133	9237	9341	9444	9548	9652	9756	9859	9963		
88	6220067	0170	0274	0378	0482	0585	0689	0793	0896	1000		
89	1104	1207	1311	1415	1518	1622	1726	1829	1933	2037		
4190	2140	2244	2348	2451	2555	2658	2762	2866	2969	3073		
91	3177	3280	3384	3487	3591	3695	3798	3902	4006	4109		
92	4213	4316	4420	4524	4627	4731	4834	4938	5041	5145		103
93	5249	5352	5456	5559	5663	5766	5870	5974	6077	6181		1 10
94	6284	6388	6491	6595	6698	6802	6906	7009	7113	7216		2 21 3 31
95	7320	7423	7527	7630	7734	7837	7941	8044	8148	8251		4 41
96	8355	8458	8562	8665	8769	8872	8976	9079	9183	9286		5 52
97	9390	9493	9597	9700	9804	9907	0011	0114	0217	0321		6 62
98	6230424	0528	0631	0735	0838	0942	1045	1148	1252	1355		7 72
99	1459	1562	1666	1769	1872	1976	2079	2183	2286	2389		8 82 9 93
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01	5514	5612	5711	5810	5908	6007	6106	6204	6303	6402
02	6500	6599	6698	6796	6895	6994	7092	7191	7290	7388
03	7487	7585	7684	7783	7881	7980	8079	8177	8276	8374
04	8473	8572	8670	8769	8868	[illegible]	9065	9163	9262	9361
05	9459	9558	9656	9755	9853	9952	$\bar{0}051$	0149	0248	0346
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4410	4386	4484	4583	4681	4780	4878	4977	5075	5174	5272
11	5371	5469	5567	5666	5764	5863	5961	[illegible]	6158	6257
12	6355	6453	6552	6650	6749	6847	6946	7044	7142	7241
13	7339	7438	7536	7635	7733	7831	7930	8028	8127	8225
14	8323	8422	8520	8618	8717	8815	8914	9012	9110	9209
15	9307	9405	9504	9602	9701	9799	9897	9996	$\bar{0}094$	0192
16	6450291	0389	0487	0586	0684	0782	0881	0979	1077	1176
17	1274	1372	1471	1569	1667	1766	1864	1962	2061	2159
18	2257	2355	2454	2552	2650	2749	2847	2945	3043	3142
19	3240	3338	3437	3535	3633	3731	3830	3928	4026	4124
4420	4223	4321	4419	4517	4616	4714	4812	4910	5009	5107
21	5205	5303	5402	5500	[illegible]	5696	5795	5893	5991	6089
22	6187	6286	6384	6482	6580	6678	6777	6875	6973	7071
23	7169	7268	7366	7464	7562	7660	7758	7857	7955	8053
24	8151	8249	8348	8446	8544	8642	8740	8838	8936	9035
25	9133	9231	9329	9427	9525	9623	9722	9820	9918	$\bar{0}016$
26	6460114	0212	0310	0408	0507	0605	0703	0801	0899	0997
27	1095	1193	1291	1390	1488	1586	1684	1782	1880	1978
28	2076	2174	2272	2370	2468	2566	2665	2763	2861	2959
29	3057	3155	3253	3351	3449	3547	3645	3743	3841	3939
4430	4037	4135	4233	4331	4429	4527	4625	4723	4821	4919
31	5018	5116	5214	5312	5410	5508	5606	5704	5802	5900
32	5998	6096	6193	6291	6389	6487	6585	6683	6781	6879
33	6977	7075	7173	7271	7369	7467	7565	7663	7761	7859
34	7957	8055	8153	8251	8349	8447	8545	8642	8740	8838
35	8936	9034	9132	9230	9328	9426	9524	9622	9720	9817
36	9915	$\bar{0}013$	0111	0209	0307	0405	0503	0601	0699	0796
37	6470894	0992	1090	1188	1286	1384	1482	1579	1677	1775
38	1873	1971	2069	2167	2264	2362	2460	2558	2656	2754
39	2851	2949	3047	3145	3243	3341	3438	3536	3634	3732
4440	3830	3928	4025	4123	4221	4319	4417	4514	4612	4710
41	4808	4906	5003	5101	5199	5297	5394	5492	5590	5688
42	5786	5883	5981	6079	6177	6274	6372	6470	6568	6665
43	6763	6861	6959	7056	7154	7252	7350	7447	7545	7643
44	7741	7838	7936	8034	8131	8229	8327	8425	8522	8620
45	8718	8815	8913	9011	9108	9206	9304	9402	9499	9597
46	9695	9792	9890	9988	$\bar{0}085$	0183	0281	0378	0476	0574
47	6480671	0769	0867	0964	1062	1160	1257	1355	1453	1550
48	1648	1745	1843	1941	2038	2136	2234	2331	2429	2526
49	2624	2722	2819	2917	3015	3112	3210	3307	3405	3503
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51	4911	5013	5115	5218	5320	5422	5524	5626	5728	5830		102
52	5933	6035	6137	6239	6341	6443	6545	6647	6750	6852		1 | 10
53	6954	7056	7158	7260	7362	7464	7566	7669	7771	7873		2 | 20
54	7975	8077	8179	8281	8383	8485	8587	8689	8792	8894		3 | 31 4 | 41
55	8996	9098	9200	9302	9404	9506	9608	9710	9812	9914		5 | 51
56	6290016	0118	0220	0322	0424	0526	0628	0730	0832	0934		6 | 61
57	1037	1139	1241	1343	1445	1547	1649	1751	1853	1955	102	7 | 71
58	2057	2159	2261	2363	2465	2567	2668	2770	2872	2974		8 | 82
59	3076	3178	3280	3382	3484	3586	3688	3790	3892	3994		9 | 92
4260	4096	4198	4300	4402	4504	4606	4708	4810	4911	5013		
61	5115	5217	5319	5421	5523	5625	5727	5829	5931	6033		
62	6134	6236	6338	6440	6542	6644	6746	6848	6950	7051		
63	7153	7255	7357	7459	7561	7663	7765	7866	7968	8070		
64	8172	8274	8376	8478	8579	8681	8783	8885	8987	9089		
65	9190	9292	9394	9496	9598	9699	9801	9903	$\overline{0}$005	0107		
66	6300209	0310	0412	0514	0616	0717	0819	0921	1023	1125		
67	1226	1328	1430	1532	1634	1735	1837	1939	2041	2142		
68	2244	2346	2448	2549	2651	2753	2855	2956	3058	3160		
69	3262	3363	3465	3567	3668	3770	3872	3974	4075	4177		
4270	4279	4380	4482	4584	4686	4787	4889	4991	5092	5194		
71	5296	5397	5499	5601	5702	5804	5906	6007	6109	6211		
72	6312	6414	6516	6617	6719	6821	6922	7024	7126	7227		
73	7329	7431	7532	7634	7735	7837	7939	8040	8142	8244		
74	8345	8447	8548	8650	8752	8853	8955	9056	9158	9260		
75	9361	9463	9564	9666	9768	9869	9971	$\overline{0}$072	0174	0275		
76	6310377	0479	0580	0682	0783	0885	0986	1088	1189	1291		
77	1393	1494	1596	1697	1799	1900	2002	2103	2205	2306		
78	2408	2509	2611	2712	2814	2915	3017	3118	3220	3321		
79	3423	3524	3626	3727	3829	3930	4032	4133	4235	4336		
4280	4438	4539	4641	4742	4844	4945	5046	5148	5249	5351		
81	5452	5554	5655	5757	5858	5959	6061	6162	6264	6365		
82	6467	6568	6669	6771	6872	6974	7075	7177	7278	7379		
83	7481	7582	7684	7785	7886	7988	8089	8190	8292	8393		
84	8495	8596	8697	8799	8900	9001	9103	9204	9306	9407		
85	9508	9610	9711	9812	9914	$\overline{0}$015	0116	0218	0319	0420		
86	6320522	0623	0724	0826	0927	1028	1130	1231	1332	1434		
87	1535	1636	1737	1839	1940	2041	2143	2244	2345	2446		
88	2548	2649	2750	2852	2953	3054	3155	3257	3358	3459		
89	3560	3662	3763	3864	3965	4067	4168	4269	4370	4472		
4290	4573	4674	4775	4877	4978	5079	5180	5282	5383	5484		
91	5585	5686	5788	5889	5990	6091	6192	6294	6395	6496		
92	6597	6698	6800	6901	7002	7103	7204	7305	7407	7508		101
93	7609	7710	7811	7912	8014	8115	8216	8317	8418	8519		1 | 10
94	8620	8722	8823	8924	9025	9126	9227	9328	9429	9531		2 | 20 3 | 30
95	9632	9733	9834	9935	$\overline{0}$036	0137	0238	0339	0441	0542		4 | 40
96	6330643	0744	0845	0946	1047	1148	1249	1350	1451	1552		5 | 51
97	1654	1755	1856	1957	2058	2159	2260	2361	2462	2563		6 | 61 7 | 71
98	2664	2765	2866	2967	3068	3169	3270	3371	3472	3573		8 | 81
99	3674	3775	3876	3978	4079	4180	4281	4382	4483	4584	101	9 | 91
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4300	6334685	4786	4887	4988	5089	5190	5291	5391	5492	5593		
01	5694	5795	5896	5997	6098	6199	6300	6401	6502	6603		101
02	6704	6805	6906	7007	7108	7209	7310	7411	7512	7613		1 10
03	7713	7814	7915	8016	8117	8218	8319	8420	8521	8622		2 20
04	8723	8824	8924	9025	9126	9227	9328	9429	9530	9631		3 30 4 40
05	9732	9832	9933	0̄034	0135	0236	0337	0438	0539	0639		5 51
06	6340740	0841	0942	1043	1144	1245	1345	1446	1547	1648		6 61
07	1749	1850	1950	2051	2152	2253	2354	2455	2555	2656		7 71
08	2757	2858	2959	3059	3160	3261	3362	3463	3563	3664		8 81
09	3765	3866	3967	4067	4168	4269	4370	4470	4571	4672		9 91
4310	4773	4873	4974	5075	5176	5276	5377	5478	5579	5679		
11	5780	5881	5982	6082	6183	6284	6385	6485	6586	6687		
12	6788	6888	6989	7090	7190	7291	7392	7492	7593	7694		
13	7795	7895	7996	8097	8197	8298	8399	8499	8600	8701		
14	8801	8902	9003	9103	9204	9305	9405	9506	9607	9707		
15	9808	9909	0̄009	0110	0211	0311	0412	0512	0613	0714		
16	6350814	0915	1016	1116	1217	1317	1418	1519	1619	1720		
17	1820	1921	2022	2122	2223	2323	2424	2525	2625	2726		
18	2826	2927	3028	3128	3229	3329	3430	3530	3631	3731		
19	3832	3933	4033	4134	4234	4335	4435	4536	4636	4737		
4320	4837	4938	5039	5139	5240	5340	5441	5541	5642	5742		
21	5843	5943	6044	6144	6245	6345	6446	6546	6647	6747		
22	6848	6948	7049	7149	7250	7350	7450	7551	7651	7752		
23	7852	7953	8053	8154	8254	8355	8455	8556	8656	8756		
24	8857	8957	9058	9158	9259	9359	9459	9560	9660	9761		
25	9861	9962	0̄062	0162	0263	0363	0464	0564	0664	0765		
26	6360865	0966	1066	1166	1267	1367	1467	1568	1668	1769		
27	1869	1969	2070	2170	2270	2371	2471	2571	2672	2772		
28	2873	2973	3073	3174	3274	3374	3475	3575	3675	3776		
29	3876	3976	4076	4177	4277	4377	4478	4578	4678	4779		
4330	4879	4979	5080	5180	5280	5380	5481	5581	5681	5782		
31	5882	5982	6082	6183	6283	6383	6483	6584	6684	6784		
32	6884	6985	7085	7185	7285	7386	7486	7586	7686	7787		
33	7887	7987	8087	8188	8288	8388	8488	8588	8689	8789		
34	8889	8989	9089	9190	9290	9390	9490	9590	9691	9791		
35	9891	9991	0̄091	0192	0292	0392	0492	0592	0692	0793		
36	6370893	0993	1093	1193	1293	1394	1494	1594	1694	1794		
37	1894	1994	2094	2195	2295	2395	2495	2595	2695	2795		
38	2895	2996	3096	3196	3296	3396	3496	3596	3696	3796		
39	3897	3997	4097	4197	4297	4397	4497	4597	4697	4797		
4340	4897	4997	5097	5197	5298	5398	5498	5598	5698	5798		
41	5898	5998	6098	6198	6298	6398	6498	6598	6698	6798		
42	6898	6998	7098	7198	7298	7398	7498	7598	7698	7798	100	100
43	7898	7998	8098	8198	8298	8398	8498	8598	8698	8798		1 10
44	8898	8998	9098	9198	9298	9398	9498	9598	9698	9798		2 20 3 30
	[illegible]	9998	0̄098	0198	0298	0398	0497	0597	0697	0797		4 40
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		[illegible]	2096	2196	2296	2396	2496	2596	2696	2795		6 60
			[illegible]	3195	3295	3395	3495	3594	3694	3794		7 70 8 80
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52	6889	6989	7088	7188	7288	7388	7488	7587	7687	7787		1 10
53	7887	7986	8086	8186	8286	8385	8485	8585	8685	8784		2 20
54	8884	8984	9084	9183	9283	9383	9483	9582	9682	9782		3 30 4 40
55	9882	9981	$\overline{0}081$	0181	0280	0380	0480	0580	0679	0779		5 50
56	6390879	0978	1078	1178	1277	1377	1477	1577	1676	1776		6 59
57	1876	1975	2075	2175	2274	2374	2474	2573	2673	2773		7 69
58	2872	2972	3072	3171	3271	3371	3470	3570	3669	3769		8 79
59	3869	3968	4068	4168	4267	4367	4466	4566	4666	4765		9 89
4360	4865	4965	5064	5164	5263	5363	5463	5562	5662	5761		
61	5861	5960	6060	6160	6259	6359	6458	6558	6657	6757		
62	6857	6956	7056	7155	7255	7354	7454	7553	7653	7753		
63	7852	7952	8051	8151	8250	8350	8449	8549	8648	8748		
64	8847	8947	9046	9146	9245	9345	9444	9544	9643	9743		
65	9842	9942	$\overline{0}041$	0141	0240	0340	0439	0539	0638	0738		
66	6400837	0937	1036	1136	1235	1335	1434	1534	1633	1732		
67	1832	1931	2031	2130	2230	2329	2429	2528	2627	2727		
68	2826	2926	3025	3125	3224	3323	3423	3522	3622	3721		
69	3820	3920	4019	4119	4218	4317	4417	4516	4616	4715		
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71	5808	5907	6007	6106	6205	6305	6404	6504	6603	6702		
72	6802	6901	7000	7100	7199	7298	7398	7497	7596	7695		
73	7795	7894	7993	8093	8192	8291	8391	8490	8589	8688		
74	8788	8887	8986	9086	9185	9284	9383	9483	9582	9681		
75	9781	9880	9979	$\overline{0}078$	0178	0277	0376	0475	0575	0674		
76	6410773	0872	0972	1071	1170	1269	1369	1468	1567	1666		
77	1765	1865	1964	2063	2162	2262	2361	2460	2559	2658		
78	2758	2857	2956	3055	3154	3254	3353	3452	3551	3650		
79	3749	3849	3948	4047	4146	4245	4344	4443	4543	4642		
4380	4741	4840	4939	5039	5138	5237	5336	5435	5534	5633		
81	5733	5832	5931	6030	6129	6228	6327	6426	6526	6625		
82	6724	6823	6922	7021	7120	7219	7318	7417	7517	7616		
83	7715	7814	7913	8012	8111	8210	8309	8408	8507	8606		
84	8705	8805	8904	9003	9102	9201	9300	9399	9498	9597		
85	9696	9795	9894	9993	$\overline{0}092$	0191	0290	0389	0488	0587		
86	6420686	0785	0884	0983	1082	1181	1280	1379	1478	1577	99	
87	1676	1775	1874	1973	2072	2171	2270	2369	2468	2567		
88	2666	2765	2864	2963	3062	3161	3260	3359	3458	3557		
89	3656	3755	3854	3953	4052	4151	4249	4348	4447	4546		
4390	4645	4744	4843	4942	5041	5140	5239	5338	5437	5535		
91	5634	5733	5832	5931	6030	6129	6228	6327	6426	6524		
92	6623	6722	6821	6920	7019	7118	7217	7315	7414	7513		98
93	7612	7711	7810	7909	8007	8106	8205	8304	8403	8502		1 10
94	8601	8699	8798	8897	8996	9095	9194	9292	9391	9490		2 20 3 29
95	9589	9688	9786	9885	9984	$\overline{0}083$	0182	0280	0379	0478		4 39
96	6430577	0676	0774	0873	0972	1071	1170	1268	1367	1466		5 49
97	1565	1663	1762	1861	1960	2058	2157	2256	2355	2454		6 59 7 69
98	2552	2651	2750	2848	2947	3046	3145	3243	3342	3441		8 78
99	3540	3638	3737	3836	3935	4033	4132	4231	4329	4428		9 88
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01	5514	5612	5711	5810	5908	6007	6106	6204	6303	6402	
02	6500	6599	6698	6796	6895	6994	7092	7191	7290	7388	
03	7487	7585	7684	7783	7881	7980	8079	8177	8276	8374	
04	8473	8572	8670	8769	8868	8966	9065	9163	9262	9361	
05	9459	9558	9656	9755	9853	9952	0̄051	0149	0248	0346	
06	6440445	0543	0642	0741	0839	0938	1036	1135	1233	1332	
07	1431	1529	1628	1726	1825	1923	2022	2120	2219	2317	
08	2416	2514	2613	2711	2810	2908	3007	3105	3204	3302	
09	3401	3499	3598	3696	3795	3893	3992	4090	4189	4287	
4410	4386	4484	4583	4681	4780	4878	4977	5075	5174	5272	
11	5371	5469	5567	5666	5764	5863	5961	6060	6158	6257	
12	6355	6453	6552	6650	6749	6847	6946	7044	7142	7241	
13	7339	7438	7536	7635	7733	7831	7930	8028	8127	8225	
14	8323	8422	8520	8618	8717	8815	8914	9012	9110	9209	
15	9307	9405	9504	9602	9701	9799	9897	9996	0̄094	0192	
16	6450291	0389	0487	0586	0684	0782	0881	0979	1077	1176	
17	1274	1372	1471	1569	1667	1766	1864	1962	2061	2159	
18	2257	2355	2454	2552	2650	2749	2847	2945	3043	3142	
19	3240	3338	3437	3535	3633	3731	3830	3928	4026	4124	
4420	4223	4321	4419	4517	4616	4714	4812	4910	5009	5107	
21	5205	5303	5402	5500	5598	5696	5795	5893	5991	6089	
22	6187	6286	6384	6482	6580	6678	6777	6875	6973	7071	
23	7169	7268	7366	7464	7562	7660	7758	7857	7955	8053	
24	8151	8249	8348	8446	8544	8642	8740	8838	8936	9035	
25	9133	9231	9329	9427	9525	9623	9722	9820	9918	0̄016	
26	6460114	0212	0310	0408	0507	0605	0703	0801	0899	0997	
27	1095	1193	1291	1390	1488	1586	1684	1782	1880	1978	
28	2076	2174	2272	2370	2468	2566	2665	2763	2861	2959	
29	3057	3155	3253	3351	3449	3547	3645	3743	3841	3939	
4430	4037	4135	4233	4331	4429	4527	4625	4723	4821	4919	98
31	5018	5116	5214	5312	5410	5508	5606	5704	5802	5900	
32	5998	6096	6193	6291	6389	6487	6585	6683	6781	6879	
33	6977	7075	7173	7271	7369	7467	7565	7663	7761	7859	
34	7957	8055	8153	8251	8349	8447	8545	8642	8740	8838	
35	8936	9034	9132	9230	9328	9426	9524	9622	9720	9817	
36	9915	0̄013	0111	0209	0307	0405	0503	0601	0699	0796	
37	6470894	0992	1090	1188	1286	1384	1482	1579	1677	1775	
38	1873	1971	2069	2167	2264	2362	2460	2558	2656	2754	
39	2851	2949	3047	3145	3243	3341	3438	3536	3634	3732	
4440	3830	3928	4025	4123	4221	4319	4417	4514	4612	4710	
41	4808	4906	5003	5101	5199	5297	5394	5492	5590	5688	
42	5786	5883	5981	6079	6177	6274	6372	6470	6568	6665	
43	6763	6861	6959	7056	7154	7252	7350	7447	7545	7643	
44	7741	7838	7936	8034	8131	8229	8327	8425	8522	8620	
45	8718	8815	8913	9011	9108	9206	9304	9402	9499	9597	
46	9695	9792	9890	9988	0̄085	0183	0281	0378	0476	0574	
47	6480671	0769	0867	0964	1062	1160	1257	1355	1453	1550	
48	1648	1745	1843	1941	2038	2136	2234	2331	2429	2526	
49	2624	2722	2819	2917	3015	3112	3210	3307	3405	3503	
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5463	5557	5650	5744	5837	5930	6024	6117	6210	6304	
6397	6490	6584	6677	6770	6864	6957	7051	7144	7237	
7331	7424	7517	7611	7704	7797	7891	7984	8077	8170	
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9197	9290	9383	9477	9570	9663	9757	9850	9943	0̄036	
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1995	2088	2181	2275	2368	2461	2554	2647	2741	2834	
2927	3020	3114	3207	3300	3393	3486	3580	3673	3766	
3859	3952	4046	4139	4232	4325	4418	4511	4605	4698	
4791	4884	4977	5071	5164	5257	5350	5443	5536	5630	
5723	5816	5909	6002	6095	6188	6282	6375	6468	6561	
6654	6747	6840	6934	7027	7120	7213	7306	7399	7492	
7585	7679	7772	7865	7958	8051	8144	8237	8330	8423	
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9447	9540	9633	9727	9820	9913	0̄006	0099	0192	0285	
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1308	1402	1495	1588	1681	1774	1867	1960	2053	2146	
2239	2332	2425	2518	2611	2704	2797	2890	2983	3076	93
3169	3262	3355	3448	3541	3634	3727	3820	3913	4006	
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9674	9767	9859	9952	0̄045	0138	0231	0324	0416	0509	
3700602	0695	0788	0881	0974	1066	1159	1252	1345	1438	
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3386	3479	3572	3665	3758	3850	3943	4036	4129	4221	
4314	4407	4500	4592	4685	4778	4871	4963	5056	5149	
5242	5334	5427	5520	5613	5705	5798	5891	5983	6076	
6169	6262	6354	6447	6540	6632	6725	6818	6911	7003	
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8023	8116	8208	8301	8394	8486	8579	8672	8764	8857	
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9876	9969	0̄061	0154	0247	0339	0432	0524	0617	0710	
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1728	1821	1914	2006	2099	2191	2284	2377	2469	2562	
2654	2747	2839	2932	3025	3117	3210	3302	3395	3487	
3580	3673	3765	3858	3950	4043	4135	4228	4320	4413	
4506	4598	4691	4783	4876	4968	5061	5153	5246	5338	
5431	5523	5616	5708	5801	5893	5986	6078	6171	6263	
6356	6448	6541	6633	6726	6818	6911	7003	7096	7188	
7281	7373	7466	7558	7651	7743	7836	7928	8021	8113	
8206	8298	8391	8483	8575	8668	8760	8853	8945	9038	
9130	9223	9315	9407	9500	9592	9685	9777	9870	9962	
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02	4055	4151	4248	4344	4441	4537	4634	4730	4827	4923		1 10
03	5019	5116	5212	5309	5405	5502	5598	5695	5791	5887		2 19
04	5984	6080	6177	6273	6369	6466	6562	6659	6755	6852		3 29 4 39
05	6948	7044	7141	7237	7334	7430	7526	7623	7719	7815		5 49
06	7912	8008	8105	8201	8297	8394	8490	8586	8683	8779		6 58
07	8876	8972	9068	9165	9261	9357	9454	9550	9646	9743		7 68 8 78
08	9839	9935	$\bar{0}$032	0128	0224	0321	0417	0513	0610	0706		9 87
09	6540802	0899	0995	1091	1188	1284	1380	1477	1573	1669		
4510	1765	1862	1958	2054	2151	2247	2343	2439	2536	2632		
11	2728	2825	2921	3017	3113	3210	3306	3402	3498	3595		
12	3691	3787	3883	3980	4076	4172	4268	4365	4461	4557		
13	4653	4750	4846	4942	5038	5134	5231	5327	5423	5519		
14	5616	5712	5808	5904	6000	6097	6193	6289	6385	6481		
15	6578	6674	6770	6866	6962	7058	7155	7251	7347	7443		
16	7539	7635	7732	7828	7924	8020	8116	8212	8309	8405		
17	8501	8597	8693	8789	8885	8982	9078	9174	9270	9366		
18	9462	9558	9655	9751	9847	9943	$\bar{0}$039	0135	0231	0327		
19	6550423	0520	0616	0712	0808	0904	1000	1096	1192	1288		
4520	1384	1480	1577	1673	1769	1865	1961	2057	2153	2249		
21	2345	2441	2537	2633	2729	2825	2921	3017	3113	3210		
22	3306	3402	3498	3594	3690	3786	3882	3978	4074	4170		
23	4266	4362	4458	4554	4650	4746	4842	4938	5034	5130	96	
24	5226	5322	5418	5514	5610	5706	5802	5898	5994	6090		
25	6186	6282	6378	6474	6570	6666	6762	6858	6954	7050		
26	7145	7241	7337	7433	7529	7625	7721	7817	7913	8009		
27	8105	8201	8297	8393	8489	8585	8681	8776	8872	8968		
28	9064	9160	9256	9352	9448	9544	9640	9736	9831	9927		
29	6560023	0119	0215	0311	0407	0503	0599	0694	0790	0886		
4530	0982	1078	1174	1270	1365	1461	1557	1653	1749	1845		
31	1941	2036	2132	2228	2324	2420	2516	2612	2707	2803		
32	2899	2995	3091	3186	3282	3378	3474	3570	3666	3761		
33	3857	3953	4049	4145	4240	4336	4432	4528	4624	4719		
34	4815	4911	5007	5103	5198	5294	5390	5486	5581	5677		
35	5773	5869	5964	6060	6156	6252	6347	6443	6539	6635		
36	6730	6826	6922	7018	7113	7209	7305	7401	7496	7592		
37	7688	7784	7879	7975	8071	8166	8262	8358	8454	8549		
38	8645	8741	8836	8932	9028	9123	9219	9315	9410	9506		
39	9602	9698	9793	9889	9985	$\bar{0}$080	0176	0272	0367	0463		
4540	6570559	0654	0750	0845	0941	1037	1132	1228	1324	1419		
41	1515	1611	1706	1802	1898	1993	2089	2184	2280	2376		96
42	2471	2567	2663	2758	2854	2949	3045	3141	3236	3332		1 10
43	3427	3523	3619	3714	3810	3905	4001	4096	4192	4288		2 19
44	4383	4479	4574	1670	4766	4861	4957	5052	5148	5243		3 29
45	5339	5434	5530	5626	5721	5817	5912	6008	6103	6199		4 38
46	6294	6390	6485	6581	6676	6772	6867	6963	7059	7154		5 48
47	7250	7345	7441	7536	7632	7727	7823	7918	8014	8109		6 58 7 67
48	8205	8300	8396	8491	8587	8682	8777	8873	8968	9064		8 77
49	9159	9255	9350	9446	9541	9637	9732	9828	9923	$\bar{0}$019		9 86
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51	1068	1164	1259	1355	1450	1545	1641	1736	1832	1927		95
52	2023	2118	2213	2309	2404	2500	2595	2690	2786	2881		1 10
53	2977	3072	3167	3263	3358	3453	3549	3644	3740	3835		2 19
54	3930	4026	4121	4216	4312	4407	4502	4598	4693	4788		3 29
55	4884	4979	5074	5170	5265	5361	5456	5551	5647	5742		4 38
56	5837	5932	6028	6123	6218	6314	6409	6504	6600	6695		5 48
57	6790	6886	6981	7076	7171	7267	7362	7457	7553	7648		6 57
58	7743	7838	7934	8029	8124	8220	8315	8410	8505	8601		7 67
59	8696	8791	8886	8982	9077	9172	9267	9363	9458	9553		8 76
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61	6590601	0696	0791	0886	0982	1077	1172	1267	1362	1458		
62	1553	1648	1743	1838	1934	2029	2124	2219	2314	2410		
63	2505	2600	2695	2790	2885	2981	3076	3171	3266	3361		
64	3456	3552	3647	3742	3837	3932	4027	4122	4218	4313		
65	4408	4503	4598	4693	4788	4883	4979	5074	5169	5264		
66	5359	5454	5549	5644	5740	5835	5930	6025	6120	6215		
67	6310	6405	6500	6595	6690	6786	6881	6976	7071	7166		
68	7261	7356	7451	7546	7641	7736	7831	7926	8021	8117		
69	8212	8307	8402	8497	8592	8687	8782	8877	8972	9067		
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71	6600112	0207	0302	0397	0492	0587	0682	0777	0872	0967	95	
72	1062	1157	1252	1347	1442	1537	1632	1727	1822	1917		
73	2012	2107	2202	2297	2392	2487	2582	2677	2772	2867		
74	2962	3057	3151	3246	3341	3436	3531	3626	3721	3816		
75	3911	4006	4101	4196	4291	4386	4481	4575	4670	4765		
76	4860	4955	5050	5145	5240	5335	5430	5524	5619	5714		
77	5809	5904	5999	6094	6189	6284	6378	6473	6568	6663		
78	6758	6853	6948	7042	7137	7232	7327	7422	7517	7612		
79	7706	7801	7896	7991	8086	8181	8275	8370	8465	8560		
4580	8655	8750	8844	8939	9034	9129	9224	9318	9413	9508		
81	9603	9698	9793	9887	9982	$\overline{0}077$	0172	0266	0361	0456		
82	6610551	0646	0740	0835	0930	1025	1120	1214	1309	1404		
83	1499	1593	1688	1783	1878	1972	2067	2162	2257	2351		
84	2446	2541	2636	2730	2825	2920	3015	3109	3204	3299		
85	3393	3488	3583	3678	3772	3867	3962	4056	4151	4246		
86	4341	4435	4530	4625	4719	4814	4909	5003	5098	5193		
87	5287	5382	5477	5571	5666	5761	5855	5950	6045	6139		
88	6234	6329	6423	6518	6613	6707	6802	6897	6991	7086		
89	7181	7275	7370	7464	7559	7654	7748	7843	7938	8032		
4590	8127	8221	8316	8411	8505	8600	8695	8789	8884	8978		
91	9073	9168	9262	9357	9451	9546	9640	9735	9830	9924		94
92	6620019	0113	0208	0303	0397	0492	0586	0681	0775	0870		1 9
93	0964	1059	1154	1248	1343	1437	1532	1626	1721	1815		2 19
94	1910	2004	2099	2194	2288	2383	2477	2572	2666	2761		3 28
95	2855	2950	3044	3139	3233	3328	3422	3517	3611	3706		4 38
96	3800	3895	3989	4084	4178	4273	4367	4462	4556	4651		5 47
97	4745	4840	4934	5028	5123	5217	5312	5406	5501	5595		6 56
98	5690	5784	5879	5973	6067	6162	6256	6351	6445	6540		7 66
99	6634	6729	6823	6917	7012	7106	7201	7295	7389	7484		8 75 9 85
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4600	6627578	7673	7767	7862	7956	8050	8145	8239	8334	8428	
01	8522	8617	8711	8805	8900	8994	9089	9183	9277	9372	
02	9466	9561	9655	9749	9844	9938	0̄032	0127	0221	0315	
03	6630410	0504	0598	0693	0787	0881	0976	1070	1164	1259	
04	1353	1447	1542	1636	1730	1825	1919	2013	2108	2202	
05	2296	2391	2485	2579	2674	2768	2862	2956	3051	3145	
06	3239	3334	3428	3522	3616	3711	3805	3899	3994	4088	
07	4182	4276	4371	4465	4559	4653	4748	4842	4936	5030	
08	5125	5219	5313	5407	5502	5596	5690	5784	5879	5973	
09	6067	6161	6256	6350	6444	6538	6632	6727	6821	6915	
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11	7951	8045	8140	8234	8328	8422	8516	8610	8705	8799	
12	8893	8987	9081	9175	9270	9364	9458	9552	9646	9740	
13	9835	9929	0̄023	0117	0211	0305	0399	0494	0588	0682	
14	6640776	0870	0964	1058	1152	1247	1341	1435	1529	1623	
15	1717	1811	1905	1999	2093	2188	2282	2376	2470	2564	
16	2658	2752	2846	2940	3034	3128	3222	3317	3411	3505	
17	3599	3693	3787	3881	3975	4069	4163	4257	4351	4445	
18	4539	4633	4727	4821	4915	5009	5104	5198	5292	5386	
19	5480	5574	5668	5762	5856	5950	6044	6138	6232	6326	
4620	6420	6514	6608	6702	6796	6890	6984	7078	7172	7266	94
21	7360	7454	7548	7642	7736	7830	7924	8018	8111	8205	
22	8299	8393	8487	8581	8675	8769	8863	8957	9051	9145	
23	9239	9333	9427	9521	9615	9709	9803	9896	9990	0̄084	
24	6650178	0272	0366	0460	0554	0648	0742	0836	0930	1023	
25	1117	1211	1305	1399	1493	1587	1681	1775	1869	1962	
26	2056	2150	2244	2338	2432	2526	2620	2713	2807	2901	
27	2995	3089	3183	3277	3370	3464	3558	3652	3746	3840	
28	3934	4027	4121	4215	4309	4403	4497	4590	4684	4778	
29	4872	4966	5059	5153	5247	5341	5435	5529	5622	5716	
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31	6748	6842	6935	7029	7123	7217	7310	7404	7498	7592	
32	7686	7779	7873	7967	8061	8154	8248	8342	8436	8529	
33	8623	8717	8810	8904	8998	9092	9185	9279	9373	9467	
34	9560	9654	9748	9841	9935	0̄029	0123	0216	0310	0404	
35	6660497	0591	0685	0778	0872	0966	1060	1153	1247	1341	
36	1434	1528	1622	1715	1809	1903	1996	2090	2184	2277	
37	2371	2465	2558	2652	2746	2839	2933	3027	3120	3214	
38	3307	3401	3495	3588	3682	3776	3869	3963	4056	4150	
39	4244	4337	4431	4525	4618	4712	4805	4899	4993	5086	
4640	5180	5273	5367	5461	5554	5648	5741	5835	5929	6022	
41	6116	6209	6303	6396	6490	6584	6677	6771	6864	6958	
42	7051	7145	7238	7332	7426	7519	7613	7706	7800	7893	
43	7987	8080	8174	8267	8361	8454	8548	8642	8735	8829	
44	8922	9016	9109	9203	9296	9390	9483	9577	9670	9764	
45	9857	9951	0̄044	0138	0231	0325	0418	0512	0605	0699	
46	6670792	0886	0979	1072	1166	1259	1353	1446	1540	1633	
47	1727	1820	1914	2007	2101	2194	2287	2381	2474	2568	
48	2661	2755	2848	2941	3035	3128	3222	3315	3409	3502	
49	3595	3689	3782	3876	3969	4063	4156	4249	4343	4436	
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4650	6674530	4623	4716	4810	4903	4996	5090	5183	5277	5370		
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52	6397	6490	6584	6677	6770	6864	6957	7051	7144	7237		1 9
53	7331	7424	7517	7611	7704	7797	7891	7984	8077	8170		2 19
54	8264	8357	8450	8544	8637	8730	8824	8917	9010	9104		3 28 4 37
55	9197	9290	9383	9477	9570	9663	9757	9850	9943	0036		5 47
56	6680130	0223	0316	0410	0503	0596	0689	0783	0876	0969		6 56
57	1062	1156	1249	1342	1435	1529	1622	1715	1808	1902		7 65
58	1995	2088	2181	2275	2368	2461	2554	2647	2741	2834		8 74
59	2927	3020	3114	3207	3300	3393	3486	3580	3673	3766		9 84
4660	3859	3952	4046	4139	4232	4325	4418	4511	4605	4698		
61	4791	4884	4977	5071	5164	5257	5350	5443	5536	5630		
62	5723	5816	5909	6002	6095	6188	6282	6375	6468	6561		
63	6654	6747	6840	6934	7027	7120	7213	7306	7399	7492		
64	7585	7679	7772	7865	7958	8051	8144	8237	8330	8423		
65	8516	8610	8703	8796	8889	8982	9075	9168	9261	9354		
66	9447	9540	9633	9727	9820	9913	0006	0099	0192	0285		
67	6690378	0471	0564	0657	0750	0843	0936	1029	1122	1215		
68	1308	1402	1495	1588	1681	1774	1867	1960	2053	2146		
69	2239	2332	2425	2518	2611	2704	2797	2890	2983	3076	93	
4670	3169	3262	3355	3448	3541	3634	3727	3820	3913	4006		
71	4099	4192	4285	4378	4471	4564	4656	4749	4842	4935		
72	5028	5121	5214	5307	5400	5493	5586	5679	5772	5865		
73	5958	6051	6144	6237	6330	6422	6515	6608	6701	6794		
74	6887	6980	7073	7166	7259	7352	7445	7537	7630	7723		
75	7816	7909	8002	8095	8188	8281	8373	8466	8559	8652		
76	8745	8838	8931	9024	9117	9209	9302	9395	9488	9581		
77	9674	9767	9859	9952	0045	0138	0231	0324	0416	0509		
78	6700602	0695	0788	0881	0974	1066	1159	1252	1345	1438		
79	1530	1623	1716	1809	1902	1995	2087	2180	2273	2366		
4680	2459	2551	2644	2737	2830	2922	3015	3108	3201	3294		
81	3386	3479	3572	3665	3758	3850	3943	4036	4129	4221		
82	4314	4407	4500	4592	4685	4778	4871	4963	5056	5149		
83	5242	5334	5427	5520	5613	5705	5798	5891	5983	6076		
84	6169	6262	6354	6447	6540	6632	6725	6818	6911	7003		
85	7096	7189	7281	7374	7467	7559	7652	7745	7837	7930		
86	8023	8116	8208	8301	8394	8486	8579	8672	8764	8857		
87	8950	9042	9135	9228	9320	9413	9505	9598	9691	9783		
88	9876	9969	0061	0154	0247	0339	0432	0524	0617	0710		
89	6710802	0895	0988	1080	1173	1265	1358	1451	1543	1636		
4690	1728	1821	1914	2006	2099	2191	2284	2377	2469	2562		
91	2654	2747	2839	2932	3025	3117	3210	3302	3395	3487		
92	3580	3673	3765	3858	3950	4043	4135	4228	4320	4413		92
93	4506	4598	4691	4783	4876	4968	5061	5153	5246	5338		1 9
94	5431	5523	5616	5708	5801	5893	5986	6078	6171	6263		2 18 3 28
95	6356	6448	6541	6633	6726	6818	6911	7003	7096	7188		4 37
96	7281	7373	7466	7558	7651	7743	7836	7928	8021	8113		5 46
97	8206	8298	8391	8483	8575	8668	8760	8853	8945	9038		6 55 7 64
98	9130	9223	9315	9407	9500	9592	9685	9777	9870	9962		8 74
99	6720054	0147	0239	0332	0424	0517	0609	0701	0794	0886		9 83
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08	9046	9134	9223	9311	9399	9488	9576	9665	9753	9842
09	9930	$\bar{0}$019	0107	0196	0284	0373	0461	0550	0638	0726
4910	6910815	0903	0992	1080	1169	1257	1346	1434	1522	1611
11	1699	1788	1876	1965	2053	2141	2230	2318	2407	2495
12	2584	2672	2760	2849	2937	3026	3114	3202	3291	3379
13	3468	3556	3644	3733	3821	3910	3998	4086	4175	4263
14	4352	4440	4528	4617	4705	4793	4882	4970	5058	5147
15	5235	5324	5412	5500	5589	5677	5765	5854	5942	6030
16	6119	6207	6295	6384	6472	6560	6649	6737	6825	6914
17	7002	7090	7179	7267	7355	7444	7532	7620	7709	7797
18	7885	7974	8062	8150	8238	8327	8415	8503	8592	8680
19	8768	8857	8945	9033	9121	9210	9298	9386	9474	9563
4920	9651	9739	9828	9916	$\bar{0}$004	0092	0181	0269	0357	0445
21	6920534	0622	0710	0798	0887	0975	1063	1151	1240	1328
22	1416	1504	1593	1681	1769	1857	1945	2034	2122	2210
23	2298	2387	2475	2563	2651	2739	2828	2916	3004	3092
24	3180	3269	3357	3445	3533	3621	3710	3798	3886	3974
25	4062	4151	4239	4327	4415	4503	4591	4680	4768	4856
26	4944	5032	5120	5209	5297	5385	5473	5561	5649	5737
27	5826	5914	6002	6090	6178	6266	6354	6443	6531	6619
28	6707	6795	6883	6971	7059	7148	7236	7324	7412	7500
29	7588	7676	7764	7853	7941	8029	8117	8205	8293	8381
4930	8469	8557	8645	8733	8822	8910	8998	9086	9174	9262
31	9350	9438	9526	9614	9702	9790	9878	9967	$\bar{0}$055	0143
32	6930231	0319	0407	0495	0583	0671	0759	0847	0935	1023
33	1111	1199	1287	1375	1463	1551	1639	1727	1815	1903
34	1991	2079	2167	2256	2344	2432	2520	2608	2696	2784
35	2872	2960	3048	3136	3224	3312	3400	3488	3576	3664
36	3752	3839	3927	4015	4103	4191	4279	4367	4455	4543
37	4631	4719	4807	4895	4983	5071	5159	5247	5335	5423
38	5511	5599	5687	5775	5863	5951	6039	6126	6214	6302
39	6390	6478	6566	6654	6742	6830	6918	7006	7094	7182
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4750	6766936	7028	7119	7210	7302	7393	7485	7576	7667	7759		
51	7850	7942	8033	8125	8216	8307	8399	8490	8582	8673		91
52	8764	8856	8947	9038	9130	9221	9313	9404	9495	9587		1 | 9
53	9678	9770	9861	9952	$\overline{0}$044	0135	0226	0318	0409	0500		2 | 18
54	6770592	0683	0774	0866	0957	1049	1140	1231	1323	1414		3 | 27 4 | 36
55	1505	1597	1688	1779	1871	1962	2053	2145	2236	2327		5 | 46
56	2418	2510	2601	2692	2784	2875	2966	3058	3149	3240		6 | 55
57	3332	3423	3514	3605	3697	3788	3879	3971	4062	4153		7 | 64
58	4244	4336	4427	4518	4609	4701	4792	4883	4975	5066		8 | 73
59	5157	5248	5340	5431	5522	5613	5705	5796	5887	5978		9 | 82
4760	6070	6161	6252	6343	6434	6526	6617	6708	6799	6891		
61	6982	7073	7164	7255	7347	7438	7529	7620	7712	7803		
62	7894	7985	8076	8168	8259	8350	8441	8532	8623	8715		
63	8806	8897	8988	9079	9171	9262	9353	9444	9535	9626		
64	9718	9809	9900	9991	$\overline{0}$082	0173	0264	0356	0447	0538		
65	6780629	0720	0811	0902	0994	1085	1176	1267	1358	1449		
66	1540	1632	1723	1814	1905	1996	2087	2178	2269	2360		
67	2452	2543	2634	2725	2816	2907	2998	3089	3180	3271		
68	3362	3454	3545	3636	3727	3818	3909	4000	4091	4182		
69	4273	4364	4455	4546	4637	4729	4820	4911	5002	5093		
4770	5184	5275	5366	5457	5548	5639	5730	5821	5912	6003		
71	6094	6185	6276	6367	6458	6549	6640	6731	6822	6913		
72	7004	7095	7186	7277	7368	7459	7550	7641	7732	7823	91	
73	7914	8005	8096	8187	8278	8369	8460	8551	8642	8733		
74	8824	8915	9006	9097	9188	9279	9370	9461	9552	9643		
75	9734	9825	9916	$\overline{0}$007	0098	0188	0279	0370	0461	0552		
76	6790643	0734	0825	0916	1007	1098	1189	1280	1371	1461		
77	1552	1643	1734	1825	1916	2007	2098	2189	2280	2371		
78	2461	2552	2643	2734	2825	2916	3007	3098	3189	3279		
79	3370	3461	3552	3643	3734	3825	3916	4006	4097	4188		
4780	4279	4370	4461	4552	4642	4733	4824	4915	5006	5097		
81	5187	5278	5369	5460	5551	5642	5732	5823	5914	6005		
82	6096	6187	6277	6368	6459	6550	6641	6731	6822	6913		
83	7004	7095	7185	7276	7367	7458	7549	7639	7730	7821		
84	7912	8002	8093	8184	8275	8366	8456	8547	8638	8729		
85	8819	8910	9001	9092	9182	9273	9364	9455	9545	9636		
86	9727	9818	9908	9999	$\overline{0}$090	0181	0271	0362	0453	0544		
87	6800634	0725	0816	0906	0997	1088	1179	1269	1360	1451		
88	1541	1632	1723	1814	1904	1995	2086	2176	2267	2358		
89	2448	2539	2630	2720	2811	2902	2992	3083	3174	3264		
4790	3355	3446	3536	3627	3718	3808	3899	3990	4080	4171		
91	4262	4352	4443	4534	4624	4715	4806	4896	4987	5077		
92	5168	5259	5349	5440	5531	5621	5712	5802	5893	5984		90
93	6074	6165	6256	6346	6437	6527	6618	6709	6799	6890		1 | 9
94	6980	7071	7161	7252	7343	7433	7524	7614	7705	7796		2 | 18 3 | 27
95	7886	7977	8067	8158	8248	8339	8430	8520	8611	8701		4 | 36
96	8792	8882	8973	9063	9154	9244	9335	9426	9516	9607		5 | 45 6 | 54
97	9697	9788	9878	9969	$\overline{0}$059	0150	0240	0331	0421	0512		7 | 63
98	6810602	0693	0783	0874	0964	1055	1145	1236	1327	1417		8 | 72
99	1507	1598	1688	1779	1869	1960	2050	2141	2231	2322		9 | 81
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01	3317	3408	3498	3588	3679	3769	3860	3950	4041	4131		91
02	4222	4312	4402	4493	4583	4674	4764	4855	4945	5035		1 9
03	5126	5216	5307	5397	5488	5578	5668	5759	5849	5940		2 18
04	6030	6120	6211	6301	6392	6482	6572	6663	6753	6844		3 27 4 36
05	6934	7024	7115	7205	7295	7386	7476	7567	7657	7747		5 46
06	7838	7928	8018	8109	8199	8289	8380	8470	8561	8651		6 55
07	8741	8832	8922	9012	9103	9193	9283	9374	9464	9554		7 64
08	9645	9735	9825	9916	$\overline{0}006$	0096	0187	0277	0367	0457		8 73
09	6820548	0638	0728	0819	0909	0999	1090	1180	1270	1360		9 82
4810	1451	1541	1631	1722	1812	1902	1992	2083	2173	2263		
11	2354	2444	2534	2624	2715	2805	2895	2985	3076	3166		
12	3256	3346	3437	3527	3617	3707	3798	3888	3978	4068		
13	4159	4249	4339	4429	4520	4610	4700	4790	4880	4971		
14	5061	5151	5241	5331	5422	5512	5602	5692	5783	5873		
15	5963	6053	6143	6233	6324	6414	6504	6594	6684	6775		
16	6865	6955	7045	7135	7225	7316	7406	7496	7586	7676		
17	7766	7857	7947	8037	8127	8217	8307	8398	8488	8578		
18	8668	8758	8848	8938	9029	9119	9209	9299	9389	9479		
19	9569	9659	9750	9840	9930	$\overline{0}020$	0110	0200	0290	0380		
4820	6830470	0560	0651	0741	0831	0921	1011	1101	1191	1281		
21	1371	1461	1551	1642	1732	1822	1912	2002	2092	2182		
22	2272	2362	2452	2542	2632	2722	2812	2902	2993	3083		
23	3173	3263	3353	3443	3533	3623	3713	3803	3893	3983		
24	4073	4163	4253	4343	4433	4523	4613	4703	4793	4883	90	
25	4973	5063	5153	5243	5333	5423	5513	5603	5693	5783		
26	5873	5963	6053	6143	6233	6323	6413	6503	6593	6683		
27	6773	6863	6953	7043	7133	7223	7313	7403	7493	7583		
28	7673	7763	7853	7942	8032	8122	8212	8302	8392	8482		
29	8572	8662	8752	8842	8932	9022	9112	9202	9291	9381		
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31	6840370	0460	0550	0640	0730	0820	0910	1000	1089	1179		
32	1269	1359	1449	1539	1629	1719	1808	1898	1988	2078		
33	2168	2258	2348	2438	2527	2617	2707	2797	2887	2977		
34	3066	3156	3246	3336	3426	3516	3605	3695	3785	3875		
35	3965	4055	4144	4234	4324	4414	4504	4594	4683	4773		
36	4863	4953	5043	5132	5222	5312	5402	5492	5581	5671		
37	5761	5851	5940	6030	6120	6210	6300	6389	6479	6569		
38	6659	6748	6838	6928	7018	7107	7197	7287	7377	7466		
39	7556	7646	7736	7825	7915	8005	8095	8184	8274	8364		
4840	8454	8543	8633	8723	8813	8902	8992	9082	9171	9261		
41	9351	9441	9530	9620	9710	9799	9889	9979	$\overline{0}068$	0158		
42	6850248	0338	0427	0517	0607	0696	0786	0876	0965	1055		90
43	1145	1234	1324	1414	1503	1593	1683	1772	1862	1952		1 9
44	2041	2131	2221	2310	2400	2490	2579	2669	2759	2848		2 18 3 27
45	2938	3027	3117	3207	3296	3386	3476	3565	3655	3744		4 36
46	3834	3924	4013	4103	4193	4282	4372	4461	4551	4641		5 45
47	4730	4820	4909	4999	5089	5178	5268	5357	5447	5537		6 54
48	5626	5716	5805	5895	5984	6074	6164	6253	6343	6432		7 63 8 72
49	6522	6611	6701	6791	6880	6970	7059	7149	7238	7328		9 81
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3774	3860	3946	4032	4118	4204	4290	4376	4461	4547		86
4633	4719	4805	4891	4977	5063	5149	5235	5321	5407		1 9
5493	5579	5665	5751	5837	5923	6009	6095	6181	6266		2 17
6352	6438	6524	6610	6696	6782	6868	6954	7040	7126		3 26
7212	7298	7383	7469	7555	7641	7727	7813	7899	7985		4 34
8071	8157	8242	8328	8414	8500	8586	8672	8758	8844		5 43
8930	9015	9101	9187	9273	9359	9445	9531	9617	9702		6 52
9788	9874	9960	$\bar{0}$046	0132	0218	0303	0389	0475	0561		7 60
7040647	0733	0818	0904	0990	1076	1162	1248	1334	1419		8 69
1505	1591	1677	1763	1848	1934	2020	2106	2192	2278		9 77
2363	2449	2535	2621	2707	2792	2878	2964	3050	3136		
3221	3307	3393	3479	3565	3650	3736	3822	3908	3993		
4079	4165	4251	4337	4422	4508	4594	4680	4765	4851		
4937	5023	5108	5194	5280	5366	5452	5537	5623	5709		
5794	5880	5966	6052	6137	6223	6309	6395	6480	6566		
6652	6738	6823	6909	6995	7080	7166	7252	7338	7423		
7509	7595	7680	7766	7852	7938	8023	8109	8195	8280		
8366	8452	8537	8623	8709	8795	8880	8966	9052	9137		
9223	9309	9394	9480	9566	9651	9737	9823	9908	9994		
7050080	0165	0251	0337	0422	0508	0594	0679	0765	0850		
0936	1022	1107	1193	1279	1364	1450	1536	1621	1707		
1792	1878	1964	2049	2135	2221	2306	2392	2477	2563		
2649	2734	2820	2905	2991	3077	3162	3248	3333	3419		
3505	3590	3676	3761	3847	3933	4018	4104	4189	4275		
4360	4446	4532	4617	4703	4788	4874	4959	5045	5131		
5216	5302	5387	5473	5558	5644	5729	5815	5901	5986		
6072	6157	6243	6328	6414	6499	6585	6670	6756	6841		
6927	7012	7098	7184	7269	7355	7440	7526	7611	7697		
7782	7868	7953	8039	8124	8210	8295	8381	8466	8552		
8637	8723	8808	8894	8979	9065	9150	9236	9321	9406		
9492	9577	9663	9748	9834	9919	$\bar{0}$005	0090	0176	0261		
7060347	0432	0518	0603	0688	0774	0859	0945	1030	1116		
1201	1287	1372	1457	1543	1628	1714	1799	1885	1970		
2055	2141	2226	2312	2397	2483	2568	2653	2739	2824		
2910	2995	3080	3166	3251	3337	3422	3507	3593	3678		
3764	3849	3934	4020	4105	4190	4276	4361	4447	4532		
4617	4703	4788	4873	4959	5044	5130	5215	5300	5386		
5471	5556	5642	5727	5812	5898	5983	6068	6154	6239		
6325	6410	6495	6581	6666	6751	6837	6922	7007	7092		
7178	7263	7348	7434	7519	7604	7690	7775	7860	7946		
8031	8116	8202	8287	8372	8457	8543	8628	8713	8799		
8884	8969	9055	9140	9225	9310	9396	9481	9566	9651		85
9737	9822	9907	9993	$\bar{0}$078	0163	0248	0334	0419	0504		1 9
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1442	1527	1612	1698	1783	1868	1953	2039	2124	2209		4 34
2294	2379	2465	2550	2635	2720	2805	2891	2976	3061		5 43
3146	3232	3317	3402	3487	3572	3658	3743	3828	3913		6 51 7 60
3998	4083	4169	4254	4339	4424	4509	4595	4680	4765		8 68
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03	8256	8341	8426	8511	8596	8681	8766	8851	8936	9022	
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05	9957	$\bar{0}043$	0128	0213	0298	0383	0468	0553	0638	0723	
06	7080809	0893	0978	1063	1148	1233	1318	1403	1488	1574	
07	1659	1744	1829	1914	1999	2084	2169	2254	2339	2424	
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13	6758	6843	6928	7013	7098	7183	7268	7352	7437	7522	
14	7607	7692	7777	7862	7947	8032	8117	8202	8287	8371	
15	8456	8541	8626	8711	8796	8881	8966	9051	9136	9220	
16	9305	9390	9475	9560	9645	9730	9815	9900	9984	$\bar{0}069$	
17	7090154	0239	0324	0409	0494	0579	0663	0748	0833	0918	
18	1003	1088	1173	1257	1342	1427	1512	1597	1682	1766	
19	1851	1936	2021	2106	2191	2275	2360	2445	2530	2615	
5120	2700	2784	2869	2954	3039	3124	3209	3293	3378	3463	
21	3548	3633	3717	3802	3887	3972	4057	4141	4226	4311	
22	4396	4481	4565	4650	4735	4820	4904	4989	5074	5159	
23	5244	5328	5413	5498	5583	5667	5752	5837	5922	6006	
24	6091	6176	6261	6345	6430	6515	6600	6684	6769	6854	
25	6939	7023	7108	7193	7278	7362	7447	7532	7617	7701	
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29	7100327	0412	0496	0581	0666	0750	0835	0920	1004	1089	
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31	2020	2105	2189	2274	2359	2443	2528	2613	2697	2782	
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36	6250	6335	6419	6504	6588	6673	6757	6842	6927	7011	
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38	7941	8026	8110	8195	8279	8364	8448	8533	8617	8702	
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47	5542	5626	5710	5795	5879	5964	6048	6132	6217	6301	
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7806	7894	7982	8069	8157	8245	8333	8420	8508	8596		1 9
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1313	1401	1488	1576	1663	1751	1839	1926	2014	2102		5 44
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3941	4029	4116	4204	4291	4379	4467	4554	4642	4729		8 70
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9193	9280	9367	9455	9542	9630	9717	9805	9892	9980		
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4037	4124	4212	4299	4386	4473	4560	4647	4735	4822		
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1876	1963	2050	2137	2224	2311	2398	2485	2572	2659		
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7963	8049	8136	8223	8310	8397	8484	8571	8658	8744		7 60 8 69
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03	2539	2622	2705	2789	2872	2956	3039	3123	3206	3289	
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12	7170044	0127	0211	0294	0377	0461	0544	0627	0711	0794	
13	0877	0961	1044	1127	1210	1294	1377	1460	1544	1627	
14	1710	1794	1877	1960	2043	2127	2210	2293	2377	[illegible]	
15	2543	2626	2710	2793	2876	2959	3043	3126	3209	3293	
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25	0863	0946	1029	1112	1195	1279	1362	1445	1528	1611	
26	1694	1777	1860	1943	2026	2110	2193	2276	2359	2442	
27	2525	2608	2691	2774	2857	2940	3023	3107	3190	3273	
28	3356	3439	3522	3605	3688	3771	3854	3937	4020	4103	
29	4186	4269	4353	4436	4519	4602	4685	4768	4851	4934	
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9857	9940	0023	0105	0188	0270	0353	0435	0518	0600	
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2334	2416	2499	2581	2664	2746	2829	2911	2994	3076	
3159	3241	3324	3406	3489	3571	3654	3736	3819	3901	
3984	4066	4149	4231	4314	4396	4479	4561	4644	4726	
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9480	9562	9644	9726	9808	9890	9972	0054	0136	0218	
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Pts.	81
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6784	6865	6946	7027	7108	7189	7270	7351	7433	7514		3 24 4 32
7595	7676	7757	7838	7919	8000	8081	8162	8244	8325		5 41
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9216	9298	9379	9460	9541	9622	9703	9784	9865	9946		7 57
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0838	0919	1000	1081	1162	1243	1324	1405	1486	1567		
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59	1131	1210	1290	1370	1449	1529	1608	1688	1767	1847		8 64
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61	2722	2801	2881	2960	3040	3119	3199	3278	3358	3437		
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86	2558	2637	2716	2796	2875	2954	3033	3112	3191	3270		
87	3350	3429	3508	3587	3666	3745	3824	3904	3983	4062		
88	4141	4220	4299	4378	4458	4537	4616	4695	4774	4853		
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91	6514	6594	6673	6752	6831	6910	6989	7068	7147	7226		
92	7305	7384	7463	7543	7622	7701	7780	7859	7938	8017		79
93	8096	8175	8254	8333	8412	8491	8570	8649	8728	8808		1 8
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97	1257	1336	1415	1494	1573	1652	1731	1810	1889	1968		6 47
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28	5680	5759	5837	5916	5995	6073	6152	6230	6309	6387	
29	6466	6544	6623	6702	6780	6859	6937	7016	7094	7173	
5530	7251	7330	7408	7487	7565	7644	7722	7801	7880	7958	
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33	9607	9685	9764	9842	9921	9999	0̄078	0156	0235	0313	
34	7430392	0470	0549	0627	0705	0784	0862	0941	1019	1098	
35	1176	1255	1333	1412	1490	1569	1647	1725	1804	1882	
36	1961	2039	2118	2196	2275	2353	2431	2510	2588	2667	
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52	4495	4573	4651	4729	4807	4886	4964	5042	5120	5199		
53	[illegible]	5355	5433	5511	5590	5668	5746	5824	5902	5961		
54	6059	6137	6215	6293	6372	6450	6528	6606	6684	6762		
55	6841	6919	6997	7075	7153	7232	7310	7388	7466	7544		
56	7622	7701	7779	7857	7935	8013	8091	8170	8248	8326		
57	8404	8482	8560	8638	8717	8795	8873	8951	9029	9107		
58	9185	9264	9342	9420	9498	9576	9654	9732	9810	9889		
59	9967	$\overline{0}$045	0123	0201	0279	0357	0435	0514	0592	0670		
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61	1529	1607	1685	1763	1841	1919	1998	[illegible]	2154	2232		
62	2310	2388	2466	2544	2622	2700	2778	2856	2934	3013		
63	3091	3169	3247	3325	3403	3481	3559	3637	3715	3793		
64	3871	3949	4027	4105	4183	4261	4340	4418	4496	4574		
65	4652	4730	4808	4886	4964	5042	5120	5198	5276	5354		
66	5432	5510	5588	5666	5744	5822	5900	5978	6056	6134	78	
67	6212	6290	6368	6446	6524	6602	[illegible]	6758	6836	6914		
68	[illegible]	7070	7148	7226	7304	7382	7460	7538	7616	7694		
69	7772	7850	7928	8006	8084	8162	8240	8318	8396	8474		
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71	[illegible]	9410	9487	9565	9643	9721	9799	9877	9955	$\overline{0}$033		
72	7460111	0189	0267	0345	0423	0501	0579	0657	0735	0813		
73	0890	0968	1046	1124	1202	1280	1358	1436	1514	1592		
74	1670	1748	1825	1903	1981	2059	2137	2215	2293	2371		
75	2449	2527	2605	2682	2760	2838	2916	2994	3072	3150		
76	3228	3306	3383	3461	3539	3617	3695	3773	3851	3929		
77	4006	4084	4162	4240	4318	4396	4474	4552	[illegible]	4707		
78	4785	4863	4941	5019	5097	5174	5252	5330	5408	5486		
79	5564	5641	5719	5797	5875	5953	6031	6108	6186	6264		
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82	7898	7976	8054	8132	8210	8287	8365	8443	8521	8598		
83	[illegible]	8754	8832	8910	8987	9065	9143	9221	9299	9376		
84	9454	9532	9610	9687	9765	9843	[illegible]	9998	$\overline{0}$076	0154		
85	7470232	0310	0387	0465	0543	0621	0698	0776	0854	0932		
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87	1787	1864	1942	2020	2098	2175	2253	2331	2409	2486		
88	[illegible]	2642	2719	2797	2875	2953	3030	3108	3186	3263		
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91	4895	4973	5050	5128	5206	5283	5361	5439	5516	5594		
92	5672	5749	5827	5905	5982	6060	6138	6215	6293	6371		77 1 8 2 15 3 23 4 31 5 39 6 46 7 54 8 62 9 69
93	[illegible]	6526	6603	6681	6759	[illegible]	6914	6992	7069	7147		
94	7225	7302	7380	7458	7535	7613	7690	7768	7846	7923		
95	8001	[illegible]	8156	8234	8311	8389	8467	8544	8622	[illegible]		
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98	7480329	0407	0484	0562	0639	0717	0794	0872	0950	1027		
99	1105	1182	1260	1337	1415	1492	1570	1648	1725	1803		
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01	2656	2733	2811	2888	2966	3043	3121	3198	3276	[illegible]	
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04	4981	5059	5136	5214	5291	5369	5446	5524	5601	[illegible]	
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06	6531	6608	6686	6763	6841	6918	[illegible]	7073	7151	7228	
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09	8854	8932	9009	9087	9164	9242	9319	9396	9474	9551	
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12	1177	1254	1331	1409	1486	1564	1641	1718	1796	1873	
13	1950	2028	2105	2183	2260	2337	2415	2492	[illegible]	[illegible]	
14	2724	2801	2879	2956	3034	3111	3188	[illegible]	[illegible]	3420	
15	3498	3575	3652	3730	3807	3884	3962	[illegible]	4116	4194	
16	4271	4348	4426	4503	4580	4658	4735	4812	4890	4967	
17	5044	5122	5199	5276	5353	5431	5508	5585	5663	5740	
18	5817	5895	5972	6049	6127	6204	6281	6358	6436	6513	
19	6590	6668	6745	6822	6899	6977	7054	7131	7209	7286	
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24	7500453	0530	0608	0685	0762	0839	0916	0994	1071	1148	
25	1225	1302	1380	1457	1534	1611	1688	1766	1843	1920	
26	1997	2074	2152	2229	2306	2383	2460	2538	2615	[illegible]	
27	2769	2846	2924	3001	3078	3155	[illegible]	3309	3387	3464	
28	3541	3618	3695	3772	3850	3927	4004	4081	4158	[illegible]	
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38	1251	1328	1405	1482	1559	1636	1713	1790	1867	1944	
39	2021	2098	2175	2252	[illegible]	[illegible]	2483	2560	2637	2714	77
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43	5101	5177	5254	5331	5408	5485	5562	5639	5716	5793	
44	5870	5947	[illegible]	6101	6178	6255	6332	6409	[illegible]	6563	
45	6639	6716	6793	6870	6947	7024	7101	7178	7255	7332	
46	7409	[illegible]	7563	7639	7716	7793	7870	7947	[illegible]	8101	
47	[illegible]	8255	8332	8409	8485	[illegible]	8639	8716	8793	8870	
48	[illegible]	9024	9101	9178	9254	9331	9408	9485	9562	9639	
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4326	4403	4480	4556	4633	4710	4787	4864	4940	5017		4 31
5094	5171	5248	5324	5401	5478	5555	5631	5708	5785		5 39
5862	5939	6015	6092	6169	6246	6322	6399	6476	6553		6 46
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1999	2076	2152	2229	2306	2382	2459	2536	2612	2689		
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8069	8145	8221	8298	8374	8450	8527	8603	8680	8756		
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1123	1199	1275	1352	1428	1504	1581	1657	1733	1810		
1886	1962	2038	2115	2191	2267	2344	2420	2496	2573		
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3412	3488	3564	3641	3717	3793	3870	3946	4022	4098		1 8
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4937	5014	5090	5166	5242	5319	5395	5471	5547	5624		3 23
5700	5776	5852	5929	6005	6081	6157	6233	6310	6386		4 30
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05	7573	7652	7731	7810	7889	7968	8047	8125	8204	8283		
06	8362	8441	8520	8599	8678	8756	8835	8914	8993	9072		
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12	3092	3171	3250	3328	3407	3486	3565	3644	3722	3801		
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14	[redacted]	4746	4825	4904	4983	5061	5140	5219	5298	5376		
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16	6243	6321	6400	6479	6557	6636	6715	6794	6872	6951		
17	7030	7109	7187	7266	7345	7423	7502	7581	7660	7738		
18	7817	7896	7974	8053	8132	8210	8289	8368	8447	8525		
19	8604	8683	8761	8840	8919	8997	9076	9155	9233	9312		
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22	0964	1043	1121	1200	1279	1357	1436	1515	1593	1672		
23	1750	1829	1908	1986	2065	2144	2222	2301	2379	2458		
24	2537	2615	2694	2773	2851	2930	3008	3087	3166	3244		
25	3323	3401	3480	3559	3637	3716	3794	3873	3952	4030		
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27	4895	4973	5052	5130	5209	5288	5366	5445	5523	5602		
28	5680	5759	5837	5916	5995	6073	6152	6230	6309	0387		
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36	1961	2039	2118	2196	2275	2353	2431	2510	2588	2667		
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41	5882	5960	6038	6117	6195	6273	6352	6430	6508	6587		
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43	7449	7527	7605	7684	7762	7841	7919	7997	8076	8154		
44	8232	8311	8389	8467	8546	8624	8702	8781	8859	8937		
45	9016	[redacted]	9172	9250	0329	9407	9485	9564	9642	9720		
46	9799	9877	9955	0̄034	0112	0190	0268	0347	0425	0503		
47	7440582	0660	0738	0817	0895	0973	1051	1130	1208	1286		
48	1365	1443	1521	1599	1678	1756	1834	1912	1991	2069		
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7434	7509	7585	7660	7736	7811	7887	7962	8038	8113		75
8189	8264	8340	8415	8491	8566	8642	8717	8793	8868		1 8
8944	9019	9095	9170	9246	9321	9397	9472	9548	9623		2 15
9699	9774	9850	9925	0000	0076	0151	0227	0302	0378		3 23 4 30
7600453	0529	0604	0680	0755	0831	0906	0981	1057	1132		5 38
1208	1283	1359	1434	1510	1585	1661	1736	1811	1887		6 45
1962	2038	2113	2189	2264	2339	2415	2490	2566	2641		7 53
2717	2792	2867	2943	3018	3094	3169	3245	3320	3395		8 60
3471	3546	3622	3697	3772	3848	3923	3999	4074	4149		9 68
4225	4300	4376	4451	4526	4602	4677	4753	4828	4903		
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5733	5808	5883	5959	6034	6109	6185	6260	6336	6410		
6486	6562	6637	6712	6788	6863	6938	7014	7089	7164		
7240	7315	7390	7466	7541	7616	7692	7767	7842	7918		
7993	8068	8144	8219	8294	8370	8445	8520	8596	8671		
8746	8822	8897	8972	9048	9123	9198	9274	9349	9424		
9500	9575	9650	9725	9801	9876	9951	0027	0102	0177		
7610253	0328	0403	0478	0554	0629	0704	0780	0855	0930		
1005	1081	1156	1231	1307	1382	1457	1532	1608	1683		
1758	1833	1909	1984	2059	2134	2210	2285	2360	2435		
2511	2586	2661	2737	2812	2887	2962	3037	3113	3188		
3263	3338	3414	3489	3564	3639	3715	3790	3865	3940		
4016	4091	4166	4241	4316	4392	4467	4542	4617	4693		
4768	4843	4918	4993	5069	5144	5219	5294	5369	5445		
5520	5595	5670	5745	5821	5896	5971	6046	6121	6197		
6272	6347	6422	6497	6573	6648	6723	6798	6873	6948		
7024	7099	7174	7249	7324	7400	7475	7550	7625	7700		
7775	7851	7926	8001	8076	8151	8226	8301	8377	8452		
8527	8602	8677	8752	8828	8903	8978	9053	9128	9203		
9278	9354	9429	9504	9579	9654	9729	9804	9879	9955		
7620030	0105	0180	0255	0330	0405	0480	0556	0631	0706		
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1532	1607	1682	1757	1832	1907	1982	2058	2133	2208		
2283	2358	2433	2508	2583	2658	2733	2808	2883	2959		
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8286	8361	8435	8510	8585	8660	8735	8810	8885	8960		74
9035	9110	9185	9260	9335	9410	9485	9560	9635	9710		1 7
9785	9860	9935	0010	0085	0160	0235	0310	0385	0459		2 15 3 22
7630534	0609	0684	0759	0834	0909	0984	1059	1134	1209		4 30
1284	1359	1434	1509	1583	1658	1733	1808	1883	1958		5 37 6 44
2033	2108	2183	2258	2333	2408	2482	2557	2632	2707		7 52
2782	2857	2932	3007	3082	3157	3232	3306	3381	3456		8 59
3531	3606	3681	3756	3831	3906	3980	4055	4130	4205		9 67
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5800	7634280	4355	4430	4505	4579	4654	4729	4804	4879	4954	
01	5029	5104	5178	5253	5328	5403	5478	5553	5628	5702	
02	5777	5852	5927	6002	6077	6151	6226	6301	6376	6451	
03	6526	6601	6675	6750	6825	6900	6975	7050	7124	7199	
04	7274	7349	7424	7499	7573	7648	7723	7798	7873	7947	
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06	8770	8845	8920	8995	9070	9144	9219	9294	[illegible]	9443	
[illegible]	9518	9593	9668	9743	9817	[illegible]	9967	$\bar{0}$042	0117	0191	
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09	1014	1089	1163	1238	1313	1388	[illegible]	1557	1612	1687	
5810	1761	1836	1911	1986	2060	2135	2210	[illegible]	2359	2434	
11	2509	2583	2658	2733	2808	2882	2957	3032	3107	3181	
12	3256	3331	3406	3480	3555	3630	3704	3779	3854	3929	
13	4003	4078	4153	4227	4302	4377	4451	4526	4601	4676	
14	4750	4825	4900	4974	5049	5124	5198	5273	5348	5423	
[illegible]	5497	5572	5647	5721	5796	5871	5945	6020	6095	6169	
16	6244	6319	6393	6468	6543	6617	6692	6767	6841	6916	
17	6991	7065	7140	7215	7289	7364	7439	7513	7588	7663	
18	7737	7812	7886	7961	8036	8110	8185	8260	8334	8409	
19	8484	8558	8633	8707	8782	8857	8931	[illegible]	9081	9155	
[illegible]	9230	9304	9379	9454	9528	9603	9678	9752	9827	9901	
[illegible]	9976	$\bar{0}$051	0125	0200	0274	0349	0424	0498	0573	0647	
22	7650722	0797	0871	[illegible]	1020	1095	1170	1244	1319	1393	
23	1468	1542	1617	1692	1766	1841	1915	1990	2065	2139	
24	2214	2288	2363	2437	2512	2586	2661	2736	2810	2885	
25	2959	3034	3108	3183	3258	3332	3407	3481	3556	3630	
26	3705	3779	3854	3928	4003	4078	4152	4227	4301	4376	
27	4450	4525	4599	4674	4748	4823	4897	4972	5046	5121	
28	5195	5270	5344	5419	5493	5568	5643	5717	5792	5866	
29	5941	6015	6090	6164	6239	6313	6388	6462	6537	6611	
5830	6686	6760	6835	6909	6984	7058	7132	7207	7281	7356	
31	7430	7505	7579	7654	7728	7803	7877	7952	8026	8101	
32	8175	8250	8324	8399	8473	8547	8622	8696	8771	8845	
33	8920	8994	9069	9143	9218	9292	9366	9441	9515	9590	
34	9664	9739	9813	9888	9962	$\bar{0}$036	0111	0185	[illegible]	0334	
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36	1153	1227	1302	1376	1450	1525	1599	1674	1748	1823	
37	1897	1971	2046	2120	2195	2269	2343	2418	2492	2567	
38	2641	2715	2790	2864	2938	3013	3087	3162	3236	3310	
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5840	4128	[illegible]	4277	4352	4426	4500	4575	4649	4723	[illegible]	
41	4872	4946	5021	5095	5169	5244	5318	5393	5467	5541	
42	5616	5690	5764	5839	5913	5987	6062	6136	6210	[illegible]	
43	6359	[illegible]	6508	6582	6656	6730	6805	6879	6953	7028	
44	7102	7176	7251	7325	7399	7474	7548	7622	7697	7771	
45	[illegible]	7919	7994	8068	8142	8217	8291	8365	8440	8514	
46	8588	8662	8737	8811	8885	8960	9034	[illegible]	9182	9257	
47	9331	9405	9479	9554	[illegible]	9702	9777	9851	9925	9999	
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3785	3859	3934	[illegible]	4082	4156	4230	4305	4379	4453		2 15
4527	4601	4676	4750	4824	4898	4972	5046	5121	5195		3 22
5269	5343	5417	5492	5566	5640	5714	5788	5862	5937		4 30
6011	6085	6159	6233	6307	6381	6456	6530	6604	6678		5 37
6752	6826	6901	6975	7049	7123	7197	7271	7345	7420		6 44
7494	7568	7642	7716	7790	7864	7938	8013	8087	8161		7 52
8235	8309	8383	8457	8531	8606	8680	8754	8828	8902		8 59
8976	9050	9124	9198	9273	9347	9421	9495	9569	9643		9 67
9717	9791	9865	9940	$\bar{0}$014	0088	0162	0236	0310	0384		
7680458	0532	0606	0680	0754	0829	0903	0977	1051	1125		
1199	1273	1347	1421	1495	1569	1643	1717	1791	1866		
1940	2014	2088	2162	2236	2310	2384	2458	2532	2606		
2680	2754	2828	2902	2976	3050	3124	3198	3273	3347		
3421	3495	3569	3643	3717	3791	3865	3939	4013	4087		
4161	4235	4309	4383	4457	4531	4605	4679	4753	4827	74	
4901	4975	5049	5123	5197	5271	5345	5419	5493	5567		
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1557	1631	1705	1779	1852	1926	2000	2074	2148	2222		
2296	2370	2444	2517	2591	2665	2739	2813	2887	2961		
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7700416	0489	0563	0637	0711	0784	0858	0932	1005	1079		
1153	1227	1300	1374	1448	1522	1595	1669	1743	1817		
1890	1964	2038	2111	2185	2259	2333	2406	2480	2554		
2627	2701	2775	2849	2922	2996	3070	3143	3217	3291		73
3364	3438	3512	3585	3659	3733	3807	3880	3954	4028		1 7
4101	4175	4249	4322	4396	4470	4543	4617	4691	4764		2 15
4838	4912	4985	5059	5133	5206	5280	5354	5427	5501		3 22 4 29
5575	5648	5722	5796	5869	5943	6017	6090	6164	6238		5 37
6311	6385	6459	6532	[illegible]	6679	6753	6827	6900	6974		6 44
7048	7121	7195	7269	7342	7416	7489	7563	7637	7710		7 51 8 58
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01	[illegible]	9330	9403	9477	9551	9624	9698	9771	9845	9918	
02	9992	0066	0139	0213	0286	0360	0434	0507	0581	0654	
03	7710729	0801	0875	0949	1022	1096	1169	1243	1316	1390	
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06	2934	3008	3081	3155	3229	3302	[illegible]	3449	3523	3596	
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08	4405	4478	4552	4625	4699	4772	4846	4919	[illegible]	5066	
09	5140	5213	5287	5360	5434	5507	5581	5654	5728	5801	
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11	6610	6683	6757	6830	6903	6977	7050	7124	7197	7271	
12	7344	7418	7491	7565	7638	7712	7785	7858	7932	[illegible]	
13	8079	8152	8226	8299	8373	[illegible]	8519	[illegible]	8666	[illegible]	
14	[illegible]	8887	8960	9034	9107	9180	9254	9327	9401	9474	
15	9547	9621	9694	9768	9841	9915	9988	0061	0135	0208	
16	7720282	0355	0428	0502	0575	0649	0722	0795	0869	0942	
17	1016	1089	1162	1236	1309	1383	1456	1529	1603	1676	
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[illegible]	3951	4024	4097	4171	4244	4317	4391	4464	4537	4611	
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23	5417	5491	5564	5637	5711	5784	5857	5931	6004	6077	
24	6150	6224	6297	6370	6444	6517	6590	6664	6737	6810	
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26	7616	7690	7763	7836	7910	7983	8056	8129	8203	8276	
27	8349	8423	8496	8569	8642	8716	8789	8862	8935	9009	
28	9082	9155	9228	9302	9375	9448	9521	9595	9668	9741	
29	9815	9888	9961	0034	0107	0181	0254	0327	0400	0474	
5930	7730547	[illegible]	[illegible]	0767	0840	0913	0986	1060	1133	1206	
31	1279	1352	1426	1499	1572	1645	1719	1792	1865	[illegible]	
32	2011	2085	2158	2231	2304	2377	2451	2524	2597	2670	
33	2743	2817	2890	2963	3036	3109	[illegible]	3256	3329	3402	
34	3475	3549	3622	3695	3768	3841	3915	3988	4061	4134	
35	4207	4280	4354	4427	4500	4573	4646	4719	4793	4866	
36	4939	5012	5085	5158	5232	5305	5378	5451	5524	5597	
37	5670	5744	5817	5890	5963	6036	6109	[illegible]	6256	6329	
[illegible]	6402	6475	[illegible]	6621	[illegible]	6768	6841	6914	[illegible]	7060	
39	7133	7206	7280	7353	7426	7499	7572	[illegible]	7718	7791	
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41	8596	8669	8742	8815	[illegible]	8961	9034	9107	[illegible]	9253	
42	9326	9400	9473	9546	9619	9692	9765	9838	9911	9984	
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45	1519	1592	1665	1738	1811	[illegible]	1957	[illegible]	2103	2176	
46	2249	2322	2395	2468	2541	2614	2687	2760	2833	2906	
47	2979	3052	3125	3198	3271	[illegible]	3418	3491	3564	3637	
48	3710	3783	3856	[illegible]	4002	4075	4148	4221	[illegible]	4367	
49	4440	4513	4586	[illegible]	4732	4805	4878	[illegible]	5024	5097	
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7745170	5243	5316	5389	5462	5535	5608	5681	5754	5827	73	
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6629	6702	6775	6848	6921	6994	7067	7140	7213	7286		1 7
7359	7432	7505	7578	7651	7724	7797	7869	7942	8015		2 15
8088	8161	8234	8307	8380	8453	8526	8599	8672	8745		3 22
8818	8891	8964	9036	9109	9182	9255	9328	9401	9474		4 29
9547	9620	9693	9766	9839	9911	9984	$\overline{0}057$	0130	0203		5 37
7750276	0349	0422	0495	0568	0641	0713	0786	0859	0932		6 44
1005	1078	1151	1224	1297	1369	1442	1515	1588	1661		7 51
1734	1807	1880	1952	2025	2098	2171	2244	2317	2390		8 58 9 66
2463	2535	2608	2681	2754	2827	2900	2973	3046	3118		
3191	3264	3337	3410	3483	3555	3628	3701	3774	3847		
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4648	4721	4794	4867	4939	5012	5085	5158	5231	5304		
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8288	8361	8434	8506	8579	8652	8725	8798	8870	8943		
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4106	4179	4251	4324	4397	4469	4542	4615	4687	4760		
4833	4905	4978	5051	5123	5196	5269	5341	5414	5486		
5559	5632	5704	5777	5850	5922	5995	6068	6140	6213		
6286	6358	6431	6503	6576	6649	6721	6794	6867	6939		
7012	7084	7157	7230	7302	7375	7448	7520	7593	7665		
7738	7811	7883	7956	8028	8101	8174	8246	8319	8391		
8464	8537	8609	8682	8754	8827	8900	8972	9045	9117		
9190	9263	9335	9408	9480	9553	9626	9698	9771	9843		
9916	9988	$\overline{0}061$	0134	0206	0279	0351	0424	0496	0569		
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1367	1440	1512	1585	1657	1730	1802	1875	1947	2020		
2093	2165	2238	2310	2383	2455	2528	2600	2673	2745		
2818	2890	2963	3035	3108	3181	3253	3326	3398	3471		
3543	3616	3688	3761	3833	3906	3978	4051	4123	4196		
4268	4341	4413	4486	4558	4631	4703	4776	4848	4921		
4993	5066	5138	5211	5283	5356	5428	5501	5573	5646		
5718	5791	5863	5935	6008	6080	6153	6225	6298	6370		72
6443	6515	6588	6660	6733	6805	6878	6950	7022	7095		1 7
7167	7240	7312	7385	7457	7530	7602	7675	7747	7819		2 14
7892	7964	8037	8109	8182	8254	8327	8399	8471	8544		3 22
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9340	9413	9485	9558	9630	9703	9775	9847	9920	9992		5 36 6 43
7780065	0137	0209	0282	0354	0427	0499	0571	0644	0716		7 50
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01	2236	2309	2381	2453	2526	2598	2670	2743	2815	2888		7
02	2960	3032	3105	3177	3249	3322	3394	3466	3539	3611		1 2
03	3683	3756	3828	3900	3973	4045	4117	4190	4262	4335		3
04	4407	4479	4552	4624	4696	4768	4841	4913	4985	5058		4
05	5130	5202	5275	5347	5419	5492	5564	5636	5709	5781		5
06	5853	5926	5998	6070	6143	6215	6287	6359	6432	6504		6
07	6576	6649	6721	6793	6866	6938	7010	7082	7155	7227		7
08	7299	7372	7444	7516	7588	7661	7733	7805	7877	7950		8
09	8022	8094	8167	8239	8311	8383	8456	8528	8600	8672		9
6010	8745	8817	8889	8962	9034	9106	9178	9251	9323	9395		
11	9467	9540	9612	9684	9756	9829	9901	9973	0045	0117		
12	7790190	0262	0334	0406	0479	0551	0623	0695	0768	0840		
13	0912	0984	1056	1129	1201	1273	1345	1418	1490	1562		
14	1634	1706	1779	1851	1923	1995	2067	2140	2212	2284		
15	2356	2429	2501	2573	2645	2717	2790	2862	2934	3006		
16	3078	3150	3223	3295	3367	3439	3511	3584	3656	3728		
17	3800	3872	3944	4017	4089	4161	4233	4305	4377	4450		
18	4522	4594	4666	4738	4810	4883	4955	5027	5099	5171		
19	5243	5316	5388	5460	5532	5604	5676	5748	5821	5893		
6020	5965	6037	6109	6181	6253	6326	6398	6470	6542	6614		
21	6686	6758	6831	6903	6975	7047	7119	7191	7263	7335		
22	7408	7480	7552	7624	7696	7768	7840	7912	7984	8057		
23	8129	8201	8273	8345	8417	8489	8561	8633	8705	8778		
24	8850	8922	8994	9066	9138	9210	9282	9354	9426	9498		
25	9571	9643	9715	9787	9859	9931	0003	0075	0147	0219		
26	7800291	0363	0435	0507	0580	0652	0724	0796	0868	0940		
27	1012	1084	1156	1228	1300	1372	1444	1516	1588	1660		
28	1732	1804	1877	1949	2021	2093	2165	2237	2309	2381		
29	2453	2525	2597	2669	2741	2813	2885	2957	3029	3101		
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31	3893	3965	4037	4109	4181	4253	4325	4397	4469	4541	72	
32	4613	4685	4757	4829	4901	4973	5045	5117	5189	5261		
33	5333	5405	5477	5549	5621	5693	5765	5837	5909	5981		
34	6053	6125	6197	6269	6341	6413	6485	6557	6629	6701		
35	6773	6845	6917	6989	7061	7133	7204	7276	7348	7420		
36	7492	7564	7636	7708	7780	7852	7924	7996	8068	8140		
37	8212	8284	8356	8428	8500	8571	8643	8715	8787	8859		
38	8931	9003	9075	9147	9219	9291	9363	9435	9506	9578		
39	9650	9722	9794	9866	9938	0010	0082	0154	0226	0297		
6040	7810369	0441	0513	0585	0657	0729	0801	0873	0945	1016		
41	1088	1160	1232	1304	1376	1448	1520	1592	1663	1735		72
42	1807	1879	1951	2023	2095	2167	2238	2310	2382	2454		1 7
43	2526	2598	2670	2742	2813	2885	2957	3029	3101	3173		2 14
44	3245	3316	3388	3460	3532	3604	3676	3748	3819	3891		3 22
45	3963	4035	4107	4179	4250	4322	4394	4466	4538	4610		4 29
46	4681	4753	4825	4897	4969	5041	5112	5184	5256	5328		5 36 6 43
47	5400	5472	5543	5615	5687	5759	5831	5902	5974	6046		7 50
48	6118	6190	6261	6333	6405	6477	6549	6620	6692	6764		8 58
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8989	9061	9133	9204	9276	9348	9420	9491	9563	9635		1 7
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820424	0496	0568	0639	0711	0783	0855	0926	0998	1070		3 22 4 29
1141	1213	1285	1357	1428	1500	1572	1644	1715	1787		5 36
1859	1930	2002	2074	2146	2217	2289	2361	2432	2504		6 43
2576	2647	2719	2791	2863	2934	3006	3078	3149	3221		7 50
3293	3364	3436	3508	3579	3651	3723	3794	3866	3938		8 58
4010	4081	4153	4225	4296	4368	4440	4511	4583	4655		9 65
4726	4798	4870	4941	5013	5085	5156	5228	5300	5371		
5443	5514	5586	5658	5729	5801	5873	5944	6016	6088		
6159	6231	6303	6374	6446	6518	6589	6661	6732	6804		
6876	6947	7019	7091	7162	7234	7305	7377	7449	7520		
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9024	9096	9167	9239	9310	9382	9454	9525	9597	9668		
9740	9812	9883	9955	$\bar{0}026$	0098	0169	0241	0313	0384		
830456	0527	0599	0670	0742	0814	0885	0957	1028	1100		
1171	1243	1314	1386	1458	1529	1601	1672	1744	1815		
1887	1958	2030	2102	2173	2245	2316	2388	2459	2531		
2602	2674	2745	2817	2888	2960	3032	3103	3175	3246		
3318	3389	3461	3532	3604	3675	3747	3818	3890	3961		
4033	4104	4176	4247	4319	4390	4462	4533	4605	4676		
4748	4819	4891	4962	5034	5105	5177	5248	5320	5391		
5463	5534	5606	5677	5749	5820	5892	5963	6035	6106		
6178	6249	6321	6392	6464	6535	6606	6678	6749	6821		
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6173	6244	6316	6387	6458	6529	6601	6672	6743	6815		
6886	6957	7029	7100	7171	7242	7314	7385	7456	7528		
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8312	8383	8454	8526	8597	8668	8739	8811	8882	8953		1 7
9024	9096	9167	9238	9310	9381	9452	9523	9595	9666		2 14 3 21
9737	9808	9880	9951	$\bar{0}022$	0093	0165	0236	0307	0378		4 28
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1162	1233	1304	1376	1447	1518	1589	1661	1732	1803		6 43
1874	1945	2017	2088	2159	2230	2301	2373	2444	2515		7 50 8 57
2586	2658	2729	2800	2871	2942	3014	3085	3156	3227		9 64
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03	5434	5505	5576	5647	5718	5789	5861	5932	6003	6074	
04	6145	6216	6288	6359	6430	6501	6572	6643	6714	6786	
05	6857	6928	6999	7070	7141	7212	7283	7355	7426	7497	
06	7568	7639	7710	7781	7852	7924	7995	8066	8137	8208	
07	8279	8350	8421	8493	8564	8635	8706	8777	[illegible]	8919	
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6110	7860412	0483	0554	0625	0696	0767	0839	0910	0981	1052	
11	1123	1194	1265	1336	1407	1478	1549	1620	1691	1762	
12	1833	1905	1976	2047	2118	2189	2260	2331	2402	2473	
13	2544	2615	2686	2757	2828	2899	2970	3041	3112	3183	
14	3254	3325	3396	3467	3538	3609	3681	3752	3823	3894	
15	3965	4036	4107	4178	4249	4320	4391	4462	4533	4604	
16	4675	4746	4817	4888	4959	5030	5101	5172	5243	5314	
17	5385	5456	5527	5598	5669	5740	5811	5882	5953	6024	
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19	6805	6876	6946	7017	7088	7159	7230	7301	7372	7443	
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21	8224	8295	8366	8437	8508	8579	8649	8720	8791	8862	
22	8933	9004	9075	9146	9217	9288	9359	9430	9501	9572	
23	9643	9714	9784	9855	9926	9997	$\bar{0}068$	0139	0210	0281	
24	7870352	0423	0494	0565	0635	0706	0777	0848	0919	0990	
25	1061	1132	1203	1274	1345	1415	1486	1557	1628	1699	
26	1770	1841	1912	1983	2053	2124	2195	2266	2337	2408	
27	2479	2550	2621	2691	2762	2833	2904	2975	3046	3117	
28	3188	3258	3329	3400	3471	3542	3613	3684	3754	3825	
29	3896	3967	4038	4109	4180	4250	4321	4392	4463	4534	
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31	5313	5384	5455	5526	5596	5667	5738	5809	5880	5951	
32	6021	6092	6163	6234	6305	6376	6446	6517	6588	6659	
33	6730	6800	6871	6942	7013	7084	7155	7225	7296	7367	
34	7438	7509	7579	7650	7721	7792	7863	7933	8004	8075	
35	8146	8216	8287	8358	8429	8500	8570	8641	8712	8783	
36	8854	8924	8995	9066	9137	9207	9278	9349	9420	9490	
37	9561	9632	9703	9774	9844	9915	9986	$\bar{0}057$	0127	0198	
[illegible]	7880269	0340	0410	0481	0552	0623	0693	0764	0835	0906	
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41	2391	2462	2532	2603	2674	2745	2815	2886	2957	3027	
42	3098	3169	3240	3310	3381	3452	3522	3593	3664	3734	
43	3805	3876	3947	4017	4088	4159	4229	4300	4371	4441	
44	4512	4583	4653	4724	4795	4865	4936	5007	5078	5148	
45	5219	5290	5360	5431	5502	5572	5643	5714	5784	5855	
46	5926	5996	6067	6138	6208	6279	6350	6420	6491	6561	
47	6632	6703	6773	6844	6915	6985	7056	7127	7197	7268	
48	7339	7409	7480	7551	7621	7692	7762	7833	7904	7974	
49	8045	8116	8186	8257	8327	8398	8469	8539	8610	8681	
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52	6629	6702	6775	6848	6921	6994	7067	7140	7213	7286		1 7
53	7359	7432	7505	7578	7651	7724	7797	7869	7942	8015		2 15
54	8088	8161	8234	8307	8380	8453	8526	8599	8672	8745		3 22
55	8818	8891	8964	9036	9109	9182	9255	9328	9401	9474		4 29
56	9547	9620	9693	9766	9839	9911	9984	$\overline{0}$057	0130	0203		5 37
57	7750276	0349	0422	0495	0568	0641	0713	0786	0859	0932		6 44
58	1005	1078	1151	1224	1297	1369	1442	1515	1588	1661		7 51
59	1734	1807	1880	1952	2025	2098	2171	2244	2317	2390		8 58 9 66
5960	2463	2535	2608	2681	2754	2827	2900	2973	3046	3118		
61	3191	3264	3337	3410	3483	3555	3628	3701	3774	3847		
62	3920	3993	4065	4138	4211	4284	4357	4430	4502	4575		
63	4648	4721	4794	4867	4939	5012	5085	5158	5231	5304		
64	5376	5449	5522	5595	5668	5740	5813	5886	5959	6032		
65	6104	6177	6250	6323	6396	6469	6541	6614	6687	6760		
66	6832	6905	6978	7051	7124	7196	7269	7342	7415	7488		
67	7560	7633	7706	7779	7851	7924	7997	8070	8143	8215		
68	8288	8361	8434	8506	8579	8652	8725	8798	8870	8943		
69	9016	9089	9161	9234	9307	9380	9452	9525	9598	9671		
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71	7760471	0543	0616	0689	0762	0834	0907	0980	1053	1125		
72	1198	1271	1343	1416	1489	1562	1634	1707	1780	1852		
73	1925	1998	2071	2143	2216	2289	2361	2434	2507	2579		
74	2652	2725	2798	2870	2943	3016	3088	3161	3234	3306		
75	3379	3452	3524	3597	3670	3743	3815	3888	3961	4033		
76	4106	4179	4251	4324	4397	4469	4542	4615	4687	4760		
77	4833	4905	4978	5051	5123	5196	5269	5341	5414	5486		
78	5559	5632	5704	5777	5850	5922	5995	6068	6140	6213		
79	6286	6358	6431	6503	6576	6649	6721	6794	6867	6939		
5980	7012	7084	7157	7230	7302	7375	7448	7520	7593	7665		
81	7738	7811	7883	7956	8028	8101	8174	8246	8319	8391		
82	8464	8537	8609	8682	8754	8827	8900	8972	9045	9117		
83	9190	9263	9335	9408	9480	9553	9626	9698	9771	9843		
84	9916	9988	$\overline{0}$061	0134	0206	0279	0351	0424	0496	0569		
85	7770642	0714	0787	0859	0932	1004	1077	1149	1222	1295		
86	1367	1440	1512	1585	1657	1730	1802	1875	1947	2020		
87	2093	2165	2238	2310	2383	2455	2528	2600	2673	2745		
88	2818	2890	2963	3035	3108	3181	3253	3326	3398	3471		
89	3543	3616	3688	3761	3833	3906	3978	4051	4123	4196		
5990	4268	4341	4413	4486	4558	4631	4703	4776	4848	4921		
91	4993	5066	5138	5211	5283	5356	5428	5501	5573	5646		
92	5718	5791	5863	5935	6008	6080	6153	6225	6298	6370		72
93	6443	6515	6588	6660	6733	6805	6878	6950	7022	7095		1 7
94	7167	7240	7312	7385	7457	7530	7602	7675	7747	7819		2 14
95	7892	7964	8037	8109	8182	8254	8327	8399	8471	8544		3 22
96	8616	8689	8761	8834	8906	8978	9051	9123	9196	9268		4 29
97	9340	9413	9485	9558	9630	9703	9775	9847	9920	9992		5 36
98	7780065	0137	0209	0282	0354	0427	0499	0571	0644	0716		6 43 7 50
99	0789	0861	0933	1006	1078	1151	1223	1295	1368	1440		8 58 9 65
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[illegible]	4617	4687	4757	4827	4897	4967	5038	5108	5178	5248	
02	5318	5388	5458	5528	5598	5668	5738	5808	5878	5948	
03	6018	6088	6158	6228	6298	6368	6438	6508	6578	6648	70
04	6718	6788	6858	6928	6998	7068	7138	7208	7278	7348	
05	7418	7488	7558	7628	7698	7768	7838	7908	7978	8048	
06	8118	8188	8258	8328	8398	8468	8538	8608	8678	8747	
07	8817	8887	8957	9027	9097	9167	9237	9307	9377	9447	
08	9517	9587	9657	9727	9797	9867	9937	$\overline{0}007$	0077	0147	
09	7930217	0287	0356	0426	0496	0566	0636	0706	0776	0846	
6210	0916	0986	1056	1126	1196	1266	1336	1406	1475	1545	
11	1615	1685	1755	1825	1895	1965	2035	2105	2175	2245	
12	2314	2384	2454	2524	2594	2664	2734	2804	2874	2944	
13	3014	3083	3153	3223	3293	3363	3433	3503	3573	3643	
14	3712	3782	3852	3922	3992	4062	4132	4202	4272	4341	
15	4411	4481	4551	4621	4691	4761	4831	4900	4970	5040	
16	5110	5180	5250	5320	5390	5459	5529	5599	5669	5739	
17	5809	5879	5948	6018	6088	6158	6228	6298	6367	6437	
18	6507	6577	6647	6717	6787	6856	6926	6996	7066	7136	
19	7206	7275	7345	7415	7485	7555	7625	7694	7764	7834	
6220	7904	7974	8043	8113	8183	8253	8323	8393	8462	8532	
21	8602	8672	8742	8811	8881	8951	9021	9091	9160	9230	
22	9300	9370	9440	9509	9579	9649	9719	9789	9858	9928	
23	9998	$\overline{0}068$	0138	0207	0277	0347	0417	0487	0556	0626	
24	7940696	0766	0835	0905	0975	1045	1114	1184	1254	1324	
25	1394	1463	1533	1603	1673	1742	1812	1882	1952	2021	
26	2091	2161	2231	2300	2370	2440	2510	2579	2649	2719	
27	2789	2858	2928	2998	3068	3137	3207	3277	3347	3416	
28	3486	3556	3626	3695	3765	3835	3904	3974	4044	4114	
29	4183	4253	4323	4392	4462	4532	4602	4671	4741	4811	
6230	4880	4950	5020	5090	5159	5229	5299	5368	5438	5508	
31	5578	5647	5717	5787	5856	5926	5996	6065	6135	6205	
32	6274	6344	6414	6484	6553	6623	6693	6762	6832	6902	
33	6971	7041	7111	7180	7250	7320	7389	7459	7529	7598	
34	7668	7738	7807	7877	7947	8016	8086	8156	8225	8295	
35	8365	8434	8504	8574	8643	8713	8782	8852	8922	8991	
36	9061	9131	9200	9270	9340	9409	9479	9549	9618	9688	
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39	1150	1219	1289	1359	1428	1498	1567	1637	1707	1776	
6240	1846	1915	1985	2055	2124	2194	2263	2333	2403	2472	
41	2542	2611	2681	2751	2820	2890	2959	3029	[illegible]	3168	
42	3238	3307	3377	3446	3516	3586	3655	3725	3794	3864	
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44	4629	4698	4768	4838	4907	4977	5046	5116	5185	5255	
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46	6020	6089	6159	6228	6298	6367	6437	6506	6576	6646	
47	6715	6785	6854	6924	6993	7063	7132	7202	7271	7341	
48	7410	7480	7549	7619	7688	7758	7827	7897	7966	8036	
49	8105	8175	8244	8314	8383	8453	8522	8592	8661	8731	
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52	8989	9061	9133	9204	9276	9348	9420	9491	9563	9635		1 7
53	9707	9778	9850	9922	9994	$\overline{0}065$	0137	0209	0281	0352		2 14
54	7820424	0496	0568	0639	0711	0783	0855	0926	0998	1070		3 22 4 29
55	1141	1213	1285	1357	1428	1500	1572	1644	1715	1787		5 36
56	1859	1930	2002	2074	2146	2217	2289	2361	2432	2504		6 43
57	2576	2647	2719	2791	2863	2934	3006	3078	3149	3221		7 50
58	3293	3364	3436	3508	3579	3651	3723	3794	3866	3938		8 58 9 65
59	4010	4081	4153	4225	4296	4368	4440	4511	4583	4655		
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61	5443	5514	5586	5658	5729	5801	5873	5944	6016	6088		
62	6159	6231	6303	6374	6446	6518	6589	6661	6732	6804		
63	6876	6947	7019	7091	7162	7234	7305	7377	7449	7520		
64	7592	7664	7735	7807	7878	7950	8022	8093	8165	8236		
65	8308	8380	8451	8523	8594	8666	8738	8809	8881	8952		
66	9024	9096	9167	9239	9310	9382	9454	9525	9597	9668		
67	9740	9812	9883	9955	$\overline{0}026$	0098	0169	0241	0313	0384		
68	7830456	0527	0599	0670	0742	0814	0885	0957	1028	1100		
69	1171	1243	1314	1386	1458	1529	1601	1672	1744	1815		
6070	1887	1958	2030	2102	2173	2245	2316	2388	2459	2531		
71	2602	2674	2745	2817	2888	2960	3032	3103	3175	3246		
72	3318	3389	3461	3532	3604	3675	3747	3818	3890	3961		
73	4033	4104	4176	4247	4319	4390	4462	4533	4605	4676		
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75	5463	5534	5606	5677	5749	5820	5892	5963	6035	6106		
76	6178	6249	6321	6392	6464	6535	6606	6678	6749	6821		
77	6892	6964	7035	7107	7178	7250	7321	7393	7464	7536		
78	7607	7678	7750	7821	7893	7964	8036	8107	8179	8250		
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81	9750	9821	9893	9964	$\overline{0}036$	0107	0179	0250	0321	0393		
82	7840464	0536	0607	0678	0750	0821	0893	0964	1035	1107		
83	1178	1250	1321	1392	1464	1535	1607	1678	1749	1821		
84	1892	1963	2035	2106	2178	2249	2320	2392	2463	2534		
85	2606	2677	2749	2820	2891	2963	3034	3105	3177	3248		
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87	4033	4104	4176	4247	4318	4390	4461	4532	4604	4675		
88	4746	4818	4889	4960	5032	5103	5174	5246	5317	5388		
89	5460	5531	5602	5674	5745	5816	5888	5959	6030	6102		
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91	6886	6957	7029	7100	7171	7242	7314	7385	7456	7528		
92	7599	7670	7742	7813	7884	7955	8027	8098	8169	8241		71
93	8312	8383	8454	8526	8597	8668	8739	8811	8882	8953		1 7
94	9024	9096	9167	9238	9310	9381	9452	9523	9595	9666		2 14 3 21
95	9737	9808	9880	9951	$\overline{0}022$	0093	0165	0236	0307	0378		4 28
96	7850450	0521	0592	0663	0735	0806	0877	0948	1019	1091		5 36
97	1162	1233	1304	1376	1447	1518	1589	1661	1732	1803		6 43 7 50
98	1874	1945	2017	2088	2159	2230	2301	2373	2444	2515		8 57
99	2586	2658	2729	2800	2871	2942	3014	3085	3156	3227		9 64
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02	4784	4853	4922	4991	5060	5129	5197	5266	5335	5404	
03	5473	5542	5611	5680	5749	5818	5886	5955	6024	6093	
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05	6851	6920	6989	7058	7126	7195	7264	7333	7402	7471	
06	7540	7609	7677	7746	7815	7884	7953	8022	8091	8159	
07	8228	8297	8366	8435	8504	8573	8641	8710	8779	8848	
08	8917	8986	9055	9123	9192	9261	9330	9399	9468	9536	
09	9605	9674	9743	9812	9881	9949	$\overline{0}018$	0087	0156	0225	
6310	8000294	0362	0431	0500	0569	0638	0707	0775	0844	0913	
11	0982	1051	1119	1188	1257	1326	1395	1463	1532	1601	
12	1670	1739	[illegible]	1876	1945	2014	2083	2152	2220	2289	
13	2358	2427	2495	2564	2633	2702	2771	2839	2908	2977	
14	3046	3115	3183	3252	3321	3390	3458	3527	3596	3665	
15	3734	3802	3871	3940	4009	4077	4146	4215	4284	4352	
16	4421	4490	4559	4627	4696	4765	4834	4903	4971	5040	
17	5109	5178	5246	5315	5384	5453	5521	5590	5659	5727	
18	5796	5865	5934	6002	6071	6140	6209	6277	6346	6415	
19	6484	6552	6621	6690	6758	6827	6896	6965	7033	7102	
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21	7858	7927	7995	8064	8133	8201	8270	8339	[illegible]	8476	
22	8545	8614	8682	8751	[illegible]	8888	8957	9026	9094	9163	
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24	9919	9987	$\overline{0}056$	0125	0193	0262	0331	0399	0468	0537	
25	8010605	0674	0743	0811	0880	0949	1017	1086	1155	1223	
26	1292	1361	1429	1498	1566	1635	1704	1772	1841	1910	
27	1978	2047	2116	2184	2253	2322	2390	2459	2527	2596	
28	2665	2733	2802	2871	2939	3008	3076	3145	3214	3282	
29	3351	3420	3488	3557	3625	3694	3763	3831	3900	[illegible]	
6330	4037	4106	4174	4243	4312	4380	4449	4517	4586	4655	
31	4723	4792	4860	4929	4998	5066	5135	5203	5272	5340	
32	5409	5478	5546	5615	5683	5752	5821	5889	5958	6026	
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34	6781	6849	6918	6986	7055	7123	7192	7261	7329	7398	
35	7466	7535	7603	7672	7740	7809	7878	7946	8015	[illegible]	
36	8152	8220	8289	8357	8426	8494	8563	8631	8700	8769	
37	8837	[illegible]	8974	9043	9111	9180	9248	9317	9385	9454	
38	9522	9591	9659	9728	9796	9865	9933	$\overline{0}002$	0070	0139	
39	8020208	0276	0345	0413	0482	0550	0619	0687	0756	0824	
6340	0893	0961	1030	1098	1167	1235	1304	1372	1441	1509	
41	1578	1646	1715	1783	1851	1920	1988	2057	2125	2194	
42	2262	2331	2399	2468	2536	2605	2673	2742	2810	2879	
43	2947	3016	3084	3153	3221	3289	3358	3426	3495	3563	
44	3632	3700	3769	3837	3906	3974	4042	4111	4179	4248	
45	4316	4385	4453	4522	4590	4658	4727	4795	4864	[illegible]	
46	5001	5069	5138	5206	5274	5343	5411	5480	[illegible]	5617	
47	5685	5753	5822	5890	5959	6027	6096	6164	6232	6301	
48	6369	6438	6506	6574	6643	6711	6780	6848	6916	6985	
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52	9105	9173	9242	9310	9378	9447	9515	9583	9652	9720		1 7
53	9789	9857	9925	9994	0̅062	0130	0199	0267	0335	0404		2 14
54	8030472	0540	0609	0677	0745	0814	0882	0951	1019	1097		3 21 4 28
55	1156	1224	1292	1361	1429	1497	1566	1634	1702	1771		5 35
56	1839	1907	1976	2044	2112	2181	2249	2317	2385	2454		6 41
57	2522	2590	2659	2727	2795	2864	2932	3000	3069	3137		7 48
58	3205	3274	3342	3410	3478	3547	3615	3683	3752	3820		8 55 9 62
[illegible]	3888	3957	4025	4093	4161	4230	4298	4366	4435	4503		
6360	4571	4639	4708	4776	4844	4913	4981	5049	5117	5186		
61	5254	5322	5391	5459	5527	5595	5664	5732	5800	5868		
62	5937	6005	6073	6141	6210	6278	6346	6414	6483	6551		
63	6619	6687	6756	6824	6892	6960	7029	7097	7165	7233		
64	7302	7370	7438	7506	7575	7643	7711	7779	7848	7916		
65	7984	8052	8121	8189	8257	8325	8393	8462	8530	8598		
66	8666	8735	8803	8871	8939	9007	9076	9144	9212	9280		
67	9348	9417	9485	9553	9621	9690	9758	9826	9894	9962		
68	8040031	0099	0167	0235	0303	0372	0440	0508	0576	0644		
69	0712	0781	0849	0917	0985	1053	1122	1190	1258	1326		
6370	1394	1463	1531	1599	1667	1735	1803	1872	1940	2008		
71	2076	2144	2212	2281	2349	2417	2485	2553	2621	2690		
72	2758	2826	2894	2962	3030	3098	3167	3235	3303	3371		
73	3439	3507	3575	3644	3712	3780	3848	3916	3984	4052		
74	4121	4189	4257	4325	4393	4461	4529	4597	4666	4734		
75	4802	4870	4938	5006	5074	5143	5211	5279	5347	5415		
76	[illegible]	5551	5619	5687	5756	5824	5892	5960	6028	6096		
77	6164	6232	6300	6368	6437	6505	6573	6641	6709	6777		
78	6845	6913	6981	7049	7118	7186	7254	7322	7390	7458		
79	7526	7594	7662	7730	7798	7866	7934	8003	8071	8139		
6380	8207	8275	8343	8411	8479	8547	8615	8683	8751	8819		
81	8887	8956	9024	9092	9160	9228	9296	9364	9432	9500		
82	9568	9636	9704	9772	9840	9908	9976	0̅044	0112	0180		
83	8050248	0316	0385	0453	0521	0589	0657	0725	0793	0861		
84	0929	0997	1065	1133	1201	1269	1337	1405	1473	1541		
85	1609	1677	1745	1813	1881	1949	2017	2085	2153	2221		
86	2289	2357	2425	2493	2561	2629	2697	2765	2833	2901	68	
[illegible]	2969	3037	3105	3173	3241	3309	3377	3445	3513	3581		
88	3649	3717	3785	3853	3921	3989	4057	4125	4193	4261		
89	4329	4397	4465	4533	4601	4669	4737	4805	4873	4941		
6390	5009	5077	5145	5212	5280	5348	5416	5484	5552	5620		
[illegible]	5688	5756	5824	5892	5960	6028	6096	6164	6232	6300		
92	6368	6436	6504	6571	6639	6707	6775	6843	6911	6979		68
93	7047	7115	7183	7251	7319	7387	7455	7523	7590	7658		1 7
94	7726	7794	7862	7930	7998	8066	8134	8202	8270	8338		2 14 3 20
95	8405	8473	8541	[illegible]	8677	8745	8813	8881	8949	9017		4 27
96	9085	9152	9220	9288	9356	9424	9492	9560	9628	9696		5 34
[illegible]	9764	9831	9899	9967	0̅035	0103	0171	0239	0307	0374		6 41 7 48
98	8060442	0510	0578	0646	0714	0782	0850	0917	0985	1053		8 54
99	1121	1189	1257	1325	1393	1460	1528	1596	1664	1732		9 61
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02	3157	3225	3292	3360	3428	3496	3564	3632	3699	3767	
03	3835	3903	3971	4038	4106	4174	4242	4310	4378	4445	
04	4513	4581	4649	4717	4784	4852	4920	4988	50[illegible]	5124	
05	5191	5259	5327	5395	5463	5530	5598	5666	5734	5802	
06	5869	5937	6005	6073	6141	6208	6276	6344	6412	6479	
07	6547	6615	6683	6751	6818	6886	6954	7022	7089	7157	
08	7225	7293	7361	7428	7496	7564	7632	7699	7767	7835	
09	7903	7970	8038	8106	8174	8242	8309	8377	8445	8513	
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11	9258	9326	9393	9461	9529	9596	9664	9732	9800	9867	
12	9935	$\overline{0}003$	0071	0138	0206	0274	0342	0409	0477	0545	
13	8070612	0680	0748	0816	0883	0951	1019	1086	1154	1222	
14	1290	1357	1425	1493	1560	1628	1696	1764	1831	1899	
15	1967	2034	2102	2170	2237	2305	2373	2440	2508	2576	
16	2644	2711	2779	2847	2914	2982	3050	3117	3185	3253	
17	3320	3388	3456	3523	3591	3659	3726	3794	3862	3929	
18	3997	4065	4132	4200	4268	4335	4403	4471	4538	4606	
19	4674	4741	4809	4877	4944	5012	5080	5147	5215	5283	
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21	6027	6094	6162	6230	6297	6365	6432	6500	6568	6635	
22	6703	6771	6838	6906	6974	7041	7109	7176	7244	7312	
23	7379	7447	7514	7582	7650	7717	7785	7853	7920	7988	
24	8055	8123	8191	8258	8326	8393	8461	8529	8596	8664	
25	8731	8799	8867	8934	9002	9069	9137	9204	9272	9340	
26	9407	9475	9542	9610	9678	9745	9813	9880	9948	$\overline{0}015$	
27	8080083	0151	0218	[illegible]	0353	0421	0488	0556	0624	0691	
28	0759	0826	0894	0961	1029	1096	1164	1232	1299	1367	
29	1434	1502	1569	1637	1704	1772	1840	1907	1975	2042	
6430	2110	2177	2245	2312	2380	2447	2515	2582	2650	2718	
31	2785	2853	2920	2988	3055	3123	3190	3258	3325	3393	
32	3460	3528	3595	3663	3730	3798	3865	3933	4000	4068	
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54	1579	1648	1718	1787	1857	1926	1995	2065	2134	2204		3 21 4 28
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56	2967	3037	3106	3176	3245	3314	3384	3453	3523	3592		6 42
57	3662	3731	3800	3870	3939	4009	4078	4147	4217	4286		7 49
58	4356	4425	4494	4564	4633	4703	4772	4841	4911	4980		8 56
59	5050	5119	5188	5258	5327	5396	5466	5535	5605	5674		9 63
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62	7131	7200	7269	7339	7408	7477	7547	7616	7685	7755		
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69	1983	2052	2121	2191	2260	2329	2398	2468	2537	2606		
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76	6829	6899	6968	7037	7106	7175	7245	7314	7383	7452		
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92	7887	7956	8025	8094	8163	8232	8301	8370	8439	8508		69
93	8577	8646	8715	8784	8853	8922	8991	9060	9129	9198		1 7
94	9267	9336	9405	9474	9543	9612	9681	9750	9819	9888	69	2 14 3 21
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98	2027	2096	2164	2233	2302	2371	2440	2509	2578	2647		7 48 8 55
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12	7144	7211	7277	7344	7411	7477	7544	7611	7677	7744	
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24	5140	5206	5273	5339	5406	5472	5539	5605	5672	5739	
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52	3739	3805	3871	3938	4004	4070	4137	4203	4269	4335		1 7
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54	5064	5131	5197	5263	5329	5396	5462	5528	5594	5661		4 26
55	5727	5793	5859	5926	5992	6058	6124	6191	6257	6323		5 33
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57	7052	7118	7184	7251	7317	7383	7449	7515	7582	7648		7 46
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59	8376	8443	8509	8575	8641	8707	8774	8840	8906	8972		9 59
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87	6877	6943	7008	7074	7140	7206	7272	7338	7404	7470		
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46	5603	5669	5734	5799	5865	5930	5995	6061	6126	6191	
47	6257	6322	6387	6453	6518	6583	6649	6714	6779	6845	
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52	9522	9588	9653	9718	9784	9849	9914	9979	0045	0110		1 7
53	8230175	0241	0306	0371	0436	0502	0567	0632	0697	0763		2 13
54	0828	0893	0958	1024	1089	1154	1220	1285	1350	1415		3 20 4 26
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56	2133	2198	2264	2329	2394	2459	2525	2590	2655	2720		6 39
57	2786	2851	2916	2981	3047	3112	3177	3242	3307	3373		7 46
58	3438	3503	3568	3634	3699	3764	3829	3894	3960	4025		8 52
59	4090	4155	4221	4286	4351	4416	4481	4547	4612	4677		9 59
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61	5394	5460	5525	5590	5655	5720	5786	5851	5916	5981		
62	6046	6111	6177	6242	6307	6372	6437	6503	6568	6633		
63	6698	6763	6828	6894	6959	7024	7089	7154	7220	7285		
64	7350	7415	7480	7545	7611	7676	7741	7806	7871	7936		
65	8002	8067	8132	8197	8262	8327	8392	8458	8523	8588		
66	8653	8718	8783	8849	8914	8979	9044	9109	9174	9239		
67	9305	9370	9435	9500	9565	9630	9695	9761	9826	9891		
68	9956	0021	0086	0151	0216	0282	0347	0412	0477	0542		
69	8240607	0672	0737	0803	0868	0933	0998	1063	1128	1193		
6670	1258	1323	1389	1454	1519	1584	1649	1714	1779	1844		
71	1909	1975	2040	2105	2170	2235	2300	2365	2430	2495		
72	2560	2625	2691	2756	2821	2886	2951	3016	3081	3146		
73	3211	3276	3341	3406	3472	3537	3602	3667	3732	3797		
74	3862	3927	3992	4057	4122	4187	4252	4318	4383	4448		
75	4513	4578	4643	4708	4773	4838	4903	4968	5033	5098		
76	5163	5228	5293	5358	5423	5489	5554	5619	5684	5749		
77	5814	5879	5944	6009	6074	6139	6204	6269	6334	6399		
78	6464	6529	6594	6659	6724	6789	6854	6919	6984	7049		
79	7114	7179	7244	7310	7375	7440	7505	7570	7635	7700		
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81	8415	8480	8545	8610	8675	8740	8805	8870	8935	9000		
82	9065	9130	9195	9260	9325	9390	9455	9520	9585	9650		
83	9715	9780	9845	9910	9975	0040	0105	0169	0234	0299		
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85	1014	1079	1144	1209	1274	1339	1404	1469	1534	1599		
86	1664	1729	1794	1859	1924	1988	2053	2118	2183	2248		
87	2313	2378	2443	2508	2573	2638	2703	2768	2833	2898		
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89	3612	3677	3742	3807	3872	3937	4002	4066	4131	4196		
6690	4261	4326	4391	4456	4521	4586	4651	4716	4780	4845		
91	4910	4975	5040	5105	5170	5235	5300	5365	5430	5494		
92	5559	5624	5689	5754	5819	5884	5949	6014	6078	6143		64
93	6208	6273	6338	6403	6468	6533	6598	6662	6727	6792		1 6
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97	8803	8868	8933	8998	9062	9127	9192	9257	9322	9387		6 38 7 45
98	9451	9516	9581	9646	9711	9776	9840	9905	9970	0035		8 51
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02	8130470	0536	0603	0670	0737	0804	0870	0937	1004	1071		
03	1138	1204	1271	1338	1405	1471	1538	1605	1672	1739		
04	1805	1872	1939	2006	2072	2139	2206	2273	2339	2406		
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07	3808	3875	3942	4008	4075	4142	4209	4275	4342	4409		
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09	5143	5209	5276	5343	5410	5476	5543	5610	5676	5743		
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12	7144	7211	7277	7344	7411	7477	7544	7611	7677	7744		
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15	9144	9211	9278	9344	9411	9477	9544	9611	9677	9744		
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17	8140477	0544	0610	0677	0744	0810	0877	0944	1010	1077		
18	1144	1210	1277	1343	1410	1477	1543	1610	1677	1743		
19	1810	1876	1943	2010	2076	2143	2210	2276	2343	2409		
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23	4474	4540	4607	4674	4740	4807	4873	4940	5006	5073		
24	5140	5206	5273	5339	5406	5472	5539	5605	5672	5739		
25	5805	5872	5938	6005	6071	6138	6204	6271	6338	6404		
26	6471	6537	6604	6670	6737	6803	6870	6937	7003	7070		
27	7136	7203	7269	7336	7402	7469	7535	7602	7668	7735		
28	7801	7868	7935	8001	8068	8134	8201	8267	8334	8400		
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33	1127	1193	1260	1326	1392	1459	1525	1592	1658	1725		
34	1791	1858	1924	1991	2057	2124	2190	2257	2323	2389		
35	2456	2522	2589	2655	2722	2788	2855	2921	2988	3054		
36	3120	3187	3253	3320	3386	3453	3519	3586	3652	3718		
37	3785	3851	3918	3984	4051	4117	4183	4250	4316	4383		
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39	5113	5180	5246	5313	5379	5445	5512	5578	5645	5711		
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41	6441	6508	6574	6641	6707	6773	6840	6906	6973	7039		
42	7105	7172	7238	7305	7371	7437	7504	7570	7636	7703		
43	7769	7836	7902	7968	8035	8101	8167	8234	8300	8367		
44	8433	8499	8566	8632	8698	8765	8831	8897	8964	9030		
45	9097	9163	9229	9296	9362	9428	9495	9561	9627	9694		
46	9760	9826	9893	9959	0025	0092	0158	0224	0291	0357		
47	8160423	0490	0556	0622	0689	0755	0821	0888	0954	1020		
48	1087	1153	1219	1286	1352	1418	1485	1551	1617	1684		
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	4324	4389	4453	4517	4582	4646	4710	4775	4839	4903		1 6
	4967	5032	5096	5160	5225	5289	5353	5418	5482	5546		2 13
54	5611	5675	5739	5803	5868	5932	5996	6061	6125	6189		3 19 4 26
55	6254	6318	6382	6446	6511	6575	6639	6704	6768	6832		5 32
56	6896	6961	7025	7089	7154	7218	7282	7346	7411	7475		6 38
57	7539	7603	7668	7732	7796	7861	7925	7989	8053	8118		7 45
58	8182	8246	8310	8375	8439	8503	8567	8632	8696	8760		8 51
59	8824	8889	8953	9017	9081	9146	9210	9274	9338	9403		9 58
6760	9467	9531	9595	9660	9724	9788	9852	9917	9981	0̅045		
61	8300109	0174	0238	0302	0366	0431	0495	0559	0623	0687		
62	0752	0816	0880	0944	1009	1073	1137	1201	1265	1330		
63	1394	1458	1522	1587	1651	1715	1779	1843	1908	1972		
64	2036	2100	2164	2229	2293	2357	2421	2485	2550	2614		
65	2678	2742	2806	2871	2935	2999	3063	3127	3192	3256		
66	3320	3384	3448	3512	3577	3641	3705	3769	3833	3898		
67	3962	4026	4090	4154	4218	4283	4347	4411	4475	4539		
68	4604	4668	4732	4796	4860	4924	4988	5053	5117	5181		
69	5245	5309	5373	5438	5502	5566	5630	5694	5758	5823		
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71	6528	6592	6656	6721	6785	6849	6913	6977	7041	7105		
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76	9734	9798	9862	9926	9990	0̅054	0119	0183	0247	0311		
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78	1016	1080	1144	1208	1272	1336	1400	1464	1528	1592		
79	1656	1720	1784	1849	1913	1977	2041	2105	2169	2233		
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83	4218	4282	4346	4410	4474	4538	4602	4666	4730	4794		
84	4858	4922	4986	5050	5114	5178	5242	5306	5371	5435		
85	5499	5563	5627	5691	5755	5819	5883	5947	6011	6075	64	
86	6139	6203	6267	6331	6395	6459	6523	6587	6651	6715		
87	6778	6842	6906	6970	7034	7098	7162	7226	7290	7354		
88	7418	7482	7546	7610	7674	7738	7802	7866	7930	7994		
89	8058	8122	8186	8250	8314	8378	8442	8506	8570	8634		
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91	9337	9401	9465	9529	9593	9657	9721	9785	9849	9913		
92	9977	0̅041	0105	0169	0233	0296	0360	0424	0488	0552		63
93	8320616	0680	0744	0808	0872	0936	1000	1064	1128	1192		1 6
94	1255	1319	1383	1447	1511	1575	1639	1703	1767	1831		2 13 3 19
95	1895	1958	2022	2086	2150	2214	2278	2342	2406	2470		4 25
96	2534	2598	2662	2725	2789	2853	2917	2981	3045	3109		5 32
97	3173	3237	3300	3364	3428	3492	3556	3620	3684	3748		6 38
98	3812	3875	3939	4003	4067	4131	4195	4259	4323	4387		7 44
99	4450	4514	4578	4642	4706	4770	4834	4898	4961	5025		8 50 9 57
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02	2044	2109	2174	2239	2303	2368	2433	2498	2563	[illegible]	
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06	4635	4700	4765	4830	4895	4959	5024	5089	5154	5218	
07	5283	5348	5413	5477	5542	5607	5672	5736	5801	5866	
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6710	7225	7290	7355	7419	7484	7549	7614	7678	7743	7808	
11	7872	7937	8002	8067	8131	8196	8261	8325	8390	8455	
12	8519	8584	8649	8714	8778	8843	8908	8972	9037	9102	
13	9166	9231	9296	9361	9425	9490	9555	9619	9684	9749	
14	9813	9878	9943	0̄007	0072	0137	0201	0266	0331	0395	
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16	1107	1172	1236	1301	1366	1430	1495	1560	1624	1689	
17	1753	1818	1883	1947	2012	2077	2141	2206	2271	2335	64
18	2400	2465	2529	2594	2659	2723	2788	2852	2917	2982	
19	3046	3111	3176	3240	3305	3370	3434	[illegible]	3563	3628	
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21	[illegible]	4404	4468	4533	4597	4662	4727	4791	[illegible]	4920	
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25	6923	6987	7052	7117	7181	7246	7310	7375	7439	7504	
[illegible]	7569	7633	7698	7762	7827	7891	7956	8021	8085	8150	
[illegible]	8214	8279	8343	8408	8473	8537	8602	8666	8731	8795	
28	8860	8924	8989	9053	9118	[illegible]	9247	9312	9376	9441	
29	9505	9570	9634	9699	9763	9828	9893	9957	0̄022	0086	
6730	8280151	0215	0280	0344	0409	0473	0538	[illegible]	[illegible]	0731	
31	0796	0860	0925	0989	1054	1119	1183	1248	1312	1377	
32	1441	1506	1570	1635	1699	1764	1828	1893	1957	2022	
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34	2731	2796	2860	2925	2989	3054	3118	3183	3247	3312	
35	3376	3440	3505	3569	3634	3698	3763	3827	3892	3956	
36	4021	4085	4150	4214	4279	4343	4408	4472	4537	4601	
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38	5310	5375	5439	5503	5568	5632	5697	5761	5826	5890	
39	5955	6019	6083	6148	6212	6277	6341	6406	6470	6535	
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41	7243	7308	7372	7437	7501	7565	7630	7694	7759	7823	
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43	8532	8596	8660	8725	8789	8854	8918	8982	9047	9111	
44	9176	9240	9304	9369	9433	9498	9562	9626	9691	9755	
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46	8290463	0528	0592	0656	0721	0785	0850	0914	0978	1043	
47	1107	1171	[illegible]	1300	1365	1429	1493	1558	1622	1686	
48	1751	1815	1879	1944	2008	2073	2137	2201	2266	2330	
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5611	5675	5739	5803	5868	5932	5996	6061	6125	6189		3 19
6254	6318	6382	6446	6511	6575	6639	6704	6768	6832		4 26
6896	6961	7025	7089	7154	7218	7282	7346	7411	7475		5 32
7539	7603	7668	7732	7796	7861	7925	7989	8053	8118		6 38
8182	8246	8310	8375	8439	8503	8567	8632	8696	8760		7 45
8824	8889	8953	9017	9081	9146	9210	9274	9338	9403		8 51
9467	9531	9595	9660	9724	9788	9852	9917	9981	0̄045		9 58
8300109	0174	0238	0302	0366	0431	0495	0559	0623	0687		
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2678	2742	2806	2871	2935	2999	3063	3127	3192	3256		
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2297	2361	2425	2489	2553	2617	2681	2745	2809	2873		
2937	3001	3066	3130	3194	3258	3322	3386	3450	3514		
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4218	4282	4346	4410	4474	4538	4602	4666	4730	4794		
4858	4922	4986	5050	5114	5178	5242	5306	5371	5435	64	
5499	5563	5627	5691	5755	5819	5883	5947	6011	6075		
6139	6203	6267	6331	6395	6459	6523	6587	6651	6715		
6778	6842	6906	6970	7034	7098	7162	7226	7290	7354		
7418	7482	7546	7610	7674	7738	7802	7866	7930	7994		
8058	8122	8186	8250	8314	8378	8442	8506	8570	8634		
8698	8762	8826	8890	8954	9018	9081	9145	9209	9273		
9337	9401	9465	9529	9593	9657	9721	9785	9849	9913		
9977	0̄041	0105	0169	0233	0296	0360	0424	0488	0552		63
8320616	0680	0744	0808	0872	0936	1000	1064	1128	1192		1 6
1255	1319	1383	1447	1511	1575	1639	1703	1767	1831		2 13 3 19
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2534	2598	2662	2725	2789	2853	2917	2981	3045	3109		5 32
3173	3237	3300	3364	3428	3492	3556	3620	3684	3748		6 38
3812	3875	3939	4003	4067	4131	4195	4259	4323	4387		7 44 8 50
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02	2044	2109	2174	2239	2303	2368	2433	2498	2563	2627		
03	2692	2757	2822	2887	2951	3016	3081	3146	3210	3275		
04	3340	3405	3470	3534	3599	3664	3729	3794	3858	3923		
05	3988	4053	4117	4182	4247	4312	4376	4441	4506	4571		
06	4635	4700	4765	4830	4895	4959	5024	5089	5154	5218		
07	5283	5348	5413	5477	5542	5607	5672	5736	5801	5866		
08	5931	5995	6060	6125	6190	6254	6319	6384	6448	6513		
09	6578	6643	6707	6772	6837	6902	6966	7031	7096	7160		
6710	7225	7290	7355	7419	7484	7540	7614	7678	7743	7808		
11	7872	7937	8002	8067	8131	8196	8261	8325	8390	8455		
12	8519	8584	8649	8714	8778	8843	8908	8972	9037	9102		
13	9166	9231	9296	9361	9425	9490	9555	9619	9684	9749		
14	9813	9878	9943	0̄007	0072	0137	0201	0266	0331	0395		
15	8270460	0525	0590	0654	0719	0784	0848	0913	0978	1042		
16	1107	1172	1236	1301	1366	1430	1495	1560	1624	1689		
17	1753	1818	1883	1947	2012	2077	2141	2206	2271	2335	64	
18	2400	2465	2529	2594	2659	2723	2788	2852	2917	2982		
19	3046	3111	3176	3240	3305	3370	3434	3499	3563	3628		
6720	3693	3757	3822	3887	3951	4016	4080	4145	4210	4274		
21	4339	4404	4468	4533	4597	4662	4727	4791	4856	4920		
22	4985	5050	5114	5179	5244	5308	5373	5437	5502	5567		
23	5631	5696	5760	5825	5889	5954	6019	6083	6148	6212		
24	6277	6342	6406	6471	6535	6600	6665	6729	6794	6858		
25	6923	6987	7052	7117	7181	7246	7310	7375	7439	7504		
26	7569	7633	7698	7762	7827	7891	7956	8021	8085	8150		
27	8214	8279	8343	8408	8473	8537	8602	8666	8731	8795		
28	8860	8924	8989	9053	9118	9183	9247	9312	9376	9441		
29	9505	9570	9634	9699	9763	9828	9893	9957	0̄022	0086		
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31	0796	0860	0925	0989	1054	1119	1183	1248	1312	1377		
32	1441	1506	1570	1635	1699	1764	1828	1893	1957	2022		
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36	4021	4085	4150	4214	4279	4343	4408	4472	4537	4601		
37	4665	4730	4794	4859	4923	4988	5052	5117	5181	5246		
38	5310	5375	5439	5503	5568	5632	5697	5761	5826	5890		
39	5955	6019	6083	6148	6212	6277	6341	6406	6470	6535		
6740	6599	6663	6728	6792	6857	6921	6986	7050	7114	7179		
41	7243	7308	7372	7437	7501	7565	7630	7694	7759	7823		
42	7887	7952	8016	8081	8145	8210	8274	8338	8403	8467		
43	8532	8596	8660	8725	8789	8854	8918	8982	9047	9111		
44	9176	9240	9304	9369	9433	9498	9562	9626	9691	9755		
45	9820	9884	9948	0̄013	0077	0141	0206	0270	0335	0399		
46	8290463	0528	0592	0656	0721	0785	0850	0914	0978	1043		
47	1107	1171	1236	1300	1365	1429	1493	1558	1622	1686		
48	1751	1815	1879	1944	2008	2073	2137	2201	2266	2330		
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7540	7603	7666	7730	7793	7857	7920	7983	8047	8110		63
8174	8237	8300	8364	8427	8490	8554	8617	8681	8744		1 6
8807	8871	8934	8997	9061	9124	9188	9251	9314	9378		2 13
9441	9504	9568	9631	9694	9758	9821	9885	9948	$\overline{0}011$		3 19 4 25
3360075	0138	0201	0265	0328	0391	0455	0518	0581	0645		5 32
0708	0771	0835	0898	0961	1025	1088	1151	1215	1278		6 38
1341	1405	1468	1531	1595	1658	1721	1785	1848	1911		7 44
1975	2038	2101	2165	2228	2291	2355	2418	2481	2545		8 50
2608	2671	2735	2798	2861	2925	2988	3051	3115	3178		9 57
3241	3304	3368	3431	3494	3558	3621	3684	3748	3811		
3874	3937	4001	4064	4127	4191	4254	4317	4381	4444		
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5773	5836	5899	5963	6026	6089	6152	6216	6279	6342		
6405	6469	6532	6595	6658	6722	6785	6848	6911	6975		
7038	7101	7164	7228	7291	7354	7417	7481	7544	7607		
7670	7734	7797	7860	7923	7987	8050	8113	8176	8240		
8303	8366	8429	8493	8556	8619	8682	8745	8809	8872		
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3370199	0263	0326	0389	0452	0516	0579	0642	0705	0768		
0832	0895	0958	1021	1084	1147	1211	1274	1337	1400		
1463	1527	1590	1653	1716	1779	1843	1906	1969	2032		
2095	2158	2222	2285	2348	2411	2474	2538	2601	2664		
2727	2790	2853	2917	2980	3043	3106	3169	3232	3296		
3359	3422	3485	3548	3611	3674	3738	3801	3864	3927		
3990	4053	4117	4180	4243	4306	4369	4432	4495	4559		
4622	4685	4748	4811	4874	4937	5001	5064	5127	5190		
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5884	5948	6011	6074	6137	6200	6263	6326	6389	6452		
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7778	7841	7904	7967	8030	8093	8156	8219	8282	8346		
8409	8472	8535	8598	8661	8724	8787	8850	8913	8976		
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1562	1625	1688	1751	1814	1877	1940	2003	2066	2129		
2192	2255	2318	2381	2444	2507	2570	2633	2696	2759		
2822	2886	2949	3012	3075	3138	3201	3264	3327	3390		
3453	3516	3579	3642	3705	3768	3831	3894	3957	4020		62
4083	4146	4209	4272	4335	4398	4461	4524	4587	4650	63	1 6
4713	4776	4839	4902	4965	5028	5091	5154	5217	5280		2 12 3 19
5343	5406	5469	5532	5595	5658	5721	5784	5847	5910		4 25
5973	6036	6098	6161	6224	6287	6350	6413	6476	6539		5 31
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7232	7295	7358	7421	7484	7547	7610	7673	7736	7798		7 43 8 50
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02	9750	9812	9875	9938	$\overline{0}$001	0064	0127	0190	0253	0316	
03	8390379	0442	0505	0567	0630	0693	0756	0819	0882	0945	
04	1008	1071	1134	1197	1259	1322	1385	1448	1511	1574	
05	1637	1700	1763	1826	1888	1951	2014	2077	2140	2203	
06	2266	2329	2392	2454	2517	2580	2643	2706	2769	2832	
07	2895	2957	3020	3083	3146	3209	3272	[illegible]	3398	[illegible]	
08	3523	3586	3649	3712	3775	[illegible]	3900	3963	4026	4089	
09	4152	4215	4278	4341	4403	4466	4529	4592	4655	4718	
6910	4780	4843	4906	4969	5032	5095	5158	5220	5283	5346	
11	5409	5472	5535	5597	5660	5723	5786	5849	5912	[illegible]	
12	6037	6100	6163	6226	6289	6351	6414	6477	6540	6603	
13	6666	6728	6791	6854	6917	6980	7042	7105	7168	7231	
14	7294	7357	7419	7482	7545	7608	7671	7733	7796	7859	
15	7922	7985	8047	8110	8173	8236	8299	8361	8424	8487	
16	8550	8613	8675	8738	8801	[illegible]	8927	8989	9052	9115	
17	9178	9241	9303	9366	9429	9492	9554	9617	9680	9743	
18	9806	9868	9931	9994	$\overline{0}$057	0119	0182	0245	0308	0371	
19	8400433	0496	0559	0622	0684	0747	0810	0873	0935	0998	
6920	1061	1124	1186	1249	1312	1375	1437	1500	1563	1626	
21	1688	1751	1814	1877	1939	2002	2065	2128	2190	2253	
22	2316	2379	2441	2504	2567	2630	2692	2755	2818	2881	
23	2943	3006	3069	3132	3194	3257	3320	3382	3445	3508	
24	3571	3633	3696	3759	3821	3884	3947	4010	4072	4135	
25	4198	4260	4323	4386	4449	4511	4574	4637	4699	4762	
26	4825	4888	4950	5013	[illegible]	5138	5201	5264	5326	5389	
27	5452	5515	5577	5640	5703	5765	5828	5891	5953	6016	
28	6079	6141	6204	[illegible]	6330	6392	6455	6518	6580	6643	
29	6706	6768	6831	6894	6956	7019	7082	7144	7207	7270	
6930	7332	7395	7458	7520	7583	7646	7708	7771	7834	7896	
31	7959	8022	8084	8147	8210	8272	8335	8398	8460	8523	
32	8586	8649	8711	8773	8836	8899	8961	9024	9087	9149	
33	9212	9275	9337	9400	9463	9525	9588	9650	9713	9776	
34	9838	9901	9964	$\overline{0}$026	0089	0152	0214	0277	0339	0402	
35	[illegible]	0527	0590	0653	0715	0778	0840	[illegible]	0966	1028	
36	1091	1153	1216	1279	1341	1404	1467	1529	1592	1654	
37	1717	1780	1842	1905	1967	2030	2093	2155	2218	2280	
38	2343	2406	2468	2531	2593	2656	2719	2781	2844	2906	
39	2969	3031	3094	3157	3219	3282	3344	3407	[illegible]	3532	
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41	4220	4283	4346	4408	4471	4533	4596	4658	4721	4784	
42	4846	4909	4971	5034	5096	5159	5221	5284	[illegible]	5409	
43	5472	5534	[illegible]	5659	5722	5784	5847	5909	5972	6035	
44	6097	6160	6222	6285	6347	6410	6472	[illegible]	6597	6660	
45	6723	[illegible]	6848	6910	6973	7035	7098	7160	7223	7285	
46	7348	7410	7473	7535	7598	7660	7723	7785	7848	7910	
47	7973	8036	8098	8161	8223	8286	8348	8411	8473	[illegible]	
48	8598	8661	8723	8786	8848	8911	8973	9036	9098	9161	
49	9223	9286	9348	9411	[illegible]	[illegible]	9598	9661	9723	9786	
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1098	1160	1223	1285	1348	1410	1472	1535	1597	1660		1 6
1722	1785	1847	1910	1972	2035	2097	2160	2222	2284		2 13
2347	2409	2472	2534	2597	2659	2722	2784	2846	2909		3 19 4 25
2971	3034	3096	3159	3221	3284	3346	3408	3471	3533		5 32
3596	3658	3721	3783	3845	3908	3970	4033	4095	4158		6 38
4220	4282	4345	4407	4470	4532	4595	4657	4719	4782		7 44
4844	4907	4969	5031	5094	5156	5219	5281	5344	5406		8 50 9 57
5468	5531	5593	5656	5718	5780	5843	5905	5968	6030		
6092	6155	6217	6280	6342	6404	6467	6529	6592	6654		
6716	6779	6841	6904	6966	7028	7091	7153	7215	7278		
7340	7403	7465	7527	7590	7652	7714	7777	7839	7902		
7964	8026	8089	8151	8213	8276	8338	8401	8463	8525		
8588	8650	8712	8775	8837	8899	8962	9024	9086	9149		
9211	9274	9336	9398	9461	9523	9585	9648	9710	9772		
9835	9897	9959	0022	0084	0146	0209	0271	0333	0396		
8430458	0520	0583	0645	0707	0770	0832	0894	0957	1019		
1081	1144	1206	1268	1331	1393	1455	1518	1580	1642		
1705	1767	1829	1892	1954	2016	2079	2141	2203	2265		
2328	2390	2452	2515	2577	2639	2702	2764	2826	2889		
2951	3013	3075	3138	3200	3262	3325	3387	3449	3511		
3574	3636	3698	3761	3823	3885	3948	4010	4072	4134		
4197	4259	4321	4383	4446	4508	4570	4633	4695	4757		
4819	4882	4944	5006	5069	5131	5193	5255	5318	5380		
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6687	6749	6812	6874	6936	6998	7061	7123	7185	7247		
7310	7372	7434	7496	7559	7621	7683	7745	7808	7870		
7932	7994	8056	8119	8181	8243	8305	8368	8430	8492		
8554	8616	8679	8741	8803	8865	8928	8990	9052	9114		
9176	9239	9301	9363	9425	9487	9550	9612	9674	9736		
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440420	0483	0545	0607	0669	0731	0794	0856	0918	0980		
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1664	1726	1788	1851	1913	1975	2037	2099	2161	2224		
2286	2348	2410	2472	2534	2597	2659	2721	2783	2845		
2907	2970	3032	3094	3156	3218	3280	3343	3405	3467		
3529	3591	3653	3715	3778	3840	3902	3964	4026	4088		
4150	4213	4275	4337	4399	4461	4523	4585	4647	4710		
4772	4834	4896	4958	5020	5082	5145	5207	5269	5331		
5393	5455	5517	5579	5642	5704	5766	5828	5890	5952		
6014	6076	6138	6201	6263	6325	6387	6449	6511	6573		62
6635	6697	6759	6822	6884	6946	7008	7070	7132	7194		1 6
7256	7318	7380	7443	7505	7567	7629	7691	7753	7815		2 12 3 19
7877	7939	8001	8063	8126	8188	8250	8312	8374	8436		4 25
8498	8560	8622	8684	8746	8808	8870	8933	8995	9057		5 31
9119	9181	9243	9305	9367	9429	9491	9553	9615	9677		6 37 7 43
9739	9801	9863	9926	9988	0050	0112	0174	0236	0298		8 50
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02	2221	2283	2345	2407	2469	2531	2593	2655	2717	2779	
03	2841	2903	2965	3027	3089	3151	3213	3275	3337	3399	
04	3461	3523	3585	3647	3709	3771	3833	3895	3957	4019	
05	4081	4143	4205	4267	4329	4391	4453	4515	4577	4639	62
06	4701	4763	4825	4887	4949	5011	5073	5135	5197	5259	
07	5321	5383	5445	5507	5569	5631	5693	5755	5817	5879	
08	5941	6003	6065	6127	6189	6251	6313	6375	6437	6499	
09	6561	6623	6685	6746	6808	6870	6932	6994	7056	7118	
7010	7180	7242	7304	7366	7428	7490	7552	7614	7676	7738	
11	7800	7862	7924	7986	8047	8109	8171	8233	8295	8357	
12	8419	8481	8543	8605	8667	8729	8791	8853	8915	8976	
13	9038	9100	9162	9224	9286	9348	9410	9472	9534	9596	
14	9658	9720	9781	9843	9905	9967	$\overline{0}029$	0091	0153	0215	
15	8460277	0339	0401	0462	0524	0586	0648	0710	0772	0834	
16	0896	0958	1020	1082	1143	1205	1267	1329	1391	1453	
17	1515	1577	1639	1700	1762	1824	1886	1948	2010	2072	
18	2134	2196	2257	2319	2381	2443	2505	2567	2629	2691	
19	2752	2814	2876	2938	3000	3062	3124	3186	3247	3309	
7020	3371	3433	3495	3557	3619	3680	3742	3804	3866	3928	
21	3990	4052	4113	4175	4237	4299	4361	4423	4485	4546	
22	4608	4670	4732	4794	4856	4917	4979	5041	5103	5165	
23	5227	5289	5350	5412	5474	5536	5598	5660	5721	5783	
24	5845	5907	5969	6031	6092	6154	6216	6278	6340	6401	
25	6463	6525	6587	6649	6711	6772	6834	6896	6958	7020	
26	7081	7143	7205	7267	7329	7391	7452	7514	7576	7638	
27	7700	7761	7823	7885	7947	8009	8070	8132	8194	8256	
28	8318	8379	8441	8503	8565	8626	8688	8750	8812	8874	
29	8935	8997	9059	9121	9183	9244	9306	9368	9430	9491	
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31	8470171	0233	0295	0356	0418	0480	0542	0603	0665	0727	
32	0789	0850	0912	0974	1036	1097	1159	1221	1283	1344	
33	1406	1468	1530	1591	1653	1715	1777	1838	1900	1962	
34	2024	2085	2147	2209	2271	2332	2394	2456	2518	2579	
35	2641	2703	2764	2826	2888	2950	3011	3073	3135	3197	
36	3258	3320	3382	3443	3505	3567	3629	3690	3752	3814	
37	3876	3937	3999	4061	4122	4184	4246	4307	4369	4431	
38	4493	4554	4616	4678	4739	4801	4863	4925	4986	5048	
39	5110	5171	5233	5295	5356	5418	5480	5542	5603	5665	
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41	6343	6405	6467	6528	6590	6652	6714	6775	6837	6899	
42	6960	7022	7084	7145	7207	7269	7330	7392	7454	7515	
43	7577	7639	7700	7762	7824	7885	7947	8009	8070	8132	
44	8193	8255	8317	8378	8440	8502	8563	8625	8687	8748	
45	8810	8872	8933	8995	9057	9118	9180	9241	9303	9365	
46	9426	9488	9550	9611	9673	9735	9796	9858	9919	9981	
47	8480043	0104	0166	0228	0289	0351	0412	0474	0536	0597	
48	0659	0721	0782	0844	0905	0967	1029	1090	1152	1213	
49	1275	1337	1398	1460	1522	1583	1645	1706	1768	1830	
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8481891	1953	2014	2076	2138	2199	2261	2322	2384	2446		
2507	2569	2630	2692	2754	2815	2877	2938	3000	3061		62
3123	3185	3246	3308	3369	3431	3493	3554	3616	3677		1 6
3739	3800	3862	3924	3985	4047	4108	4170	4231	4293		2 12
4355	4416	4478	4539	4601	4662	4724	4786	4847	4909		3 19
4970	5032	5093	5155	5216	5278	5340	5401	5463	5524		4 25
5586	5647	5709	5770	5832	5893	5955	6017	6078	6140		5 31
6201	6263	6324	6386	6447	6509	6570	6632	6693	6755		6 37
6817	6878	6940	7001	7063	7124	7186	7247	7309	7370		7 43
7432	7493	7555	7616	7678	7739	7801	7862	7924	7985		8 50
8047	8109	8170	8232	8293	8355	8416	8478	8539	8601		9 56
8662	8724	8785	8847	8908	8970	9031	9093	9154	9216		
9277	9339	9400	9462	9523	9585	9646	9708	9769	9831		
9892	9954	0015	0077	0138	0199	0261	0322	0384	0445		
8490507	0568	0630	0691	0753	0814	0876	0937	0999	1060		
1122	1183	1245	1306	1368	1429	1490	1552	1613	1675		
1736	1798	1859	1921	1982	2044	2105	2167	2228	2289		
2351	2412	2474	2535	2597	2658	2720	2781	2843	2904		
2965	3027	3088	3150	3211	3273	3334	3396	3457	3518		
3580	3641	3703	3764	3826	3887	3948	4010	4071	4133		
4194	4256	4317	4378	4440	4501	4563	4624	4686	4747		
4808	4870	4931	4993	5054	5115	5177	5238	5300	5361		
5423	5484	5545	5607	5668	5730	5791	5852	5914	5975		
6037	6098	6159	6221	6282	6344	6405	6466	6528	6589		
6651	6712	6773	6835	6896	6958	7019	7080	7142	7203		
7264	7326	7387	7449	7510	7571	7633	7694	7755	7817		
7878	7940	8001	8062	8124	8185	8246	8308	8369	8431		
8492	8553	8615	8676	8737	8799	8860	8922	8983	9044		
9106	9167	9228	9290	9351	9412	9474	9535	9596	9658		
9719	9780	9842	9903	9965	0026	0087	0149	0210	0271		
8500333	0394	0455	0517	0578	0639	0701	0762	0823	0885		
0946	1007	1069	1130	1191	1253	1314	1375	1437	1498		
1559	1621	1682	1743	1805	1866	1927	1988	2050	2111		
2172	2234	2295	2356	2418	2479	2540	2602	2663	2724		
2786	2847	2908	2969	3031	3092	3153	3215	3276	3337		
3399	3460	3521	3582	3644	3705	3766	3828	3889	3950		
4011	4073	4134	4195	4257	4318	4379	4440	4502	4563		
4624	4686	4747	4808	4869	4931	4992	5053	5115	5176		
5237	5298	5360	5421	5482	5543	5605	5666	5727	5788		
5850	5911	5972	6034	6095	6156	6217	6279	6340	6401		
6462	6524	6585	6646	6707	6769	6830	6891	6952	7014		
7075	7136	7197	7259	7320	7381	7442	7504	7565	7626		61
7687	7749	7810	7871	7932	7993	8055	8116	8177	8238		1 6
8300	8361	8422	8483	8545	8606	8667	8728	8789	8851		2 12
8912	8973	9034	9095	9157	9218	9279	9340	9402	9463		3 18
9524	9585	9646	9708	9769	9830	9891	9952	0014	0075		4 24
8510136	0197	0258	0320	0381	0442	0503	0564	0626	0687		5 31 6 37
0748	0809	0870	0932	0993	1054	1115	1176	1238	1299		7 43
1360	1421	1482	1544	1605	1666	1727	1788	1849	1911		8 49
1972	2033	2094	2155	2216	2278	2339	2400	2461	2522		9 55
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7100	8512583	2645	2706	[illegible]	2828	2889	2950	3012	3073	3134	
01	3195	3256	3317	3379	3440	3501	3562	3623	3684	3746	
02	3807	3868	3929	[illegible]	4051	4112	4174	[illegible]	4296	4357	
03	4418	4479	4540	4602	4663	4724	4785	4846	4907	4968	
04	5030	5091	5152	5213	5274	5335	5396	5457	5519	5580	
[illegible]	5641	5702	5763	5824	5885	5946	6008	6069	6130	6191	
06	6252	6313	6374	6435	6496	6558	6619	6680	6741	[illegible]	
07	6863	6924	6985	7046	7108	7169	7230	7291	7352	7413	
08	7474	7535	7596	7657	7719	7780	7841	7902	7963	[illegible]	
09	8085	8146	8207	[illegible]	8329	[illegible]	8452	8513	8574	8635	
7110	8696	8757	[illegible]	8879	8940	9001	9062	9124	9185	9246	
11	9307	9368	9429	9490	9551	9612	9673	9734	9795	9856	
12	9917	9979	0040	0101	0162	0223	0284	0345	0406	0467	
13	8520528	0589	0650	0711	0772	0833	0894	0955	1017	1078	
14	1139	1200	1261	1322	1383	1444	1505	1566	1627	1686	
15	1749	1810	1871	1932	1993	2054	2115	2176	2237	2298	
16	2359	2420	2481	2542	2604	2665	2726	2787	2848	2909	
17	2970	3031	3092	3153	3214	3275	3336	3397	3458	3519	
18	3580	3641	3702	3763	3824	3885	3946	4007	4068	4129	
19	4190	4251	4312	4373	4434	4495	4556	4617	4678	4739	61
7120	4800	4861	4922	4983	5044	5105	5166	5227	5288	5349	
21	5410	5471	5532	5593	5654	5715	5776	5837	5898	5959	
22	6020	6081	6142	6203	6264	6325	6386	6447	6508	6568	
23	6629	6690	6751	6812	6873	6934	6995	7056	7117	7178	
24	7239	7300	7361	7422	7483	7544	7605	7666	7727	7788	
25	7849	7910	7971	8032	8092	8153	8214	8275	8336	8397	
26	8458	8519	8580	8641	8702	8763	8824	8885	8946	9007	
27	9068	9129	9189	9250	9311	9372	9433	9494	9555	9616	
28	9677	9738	9799	9860	9921	9982	0042	0103	0164	0225	
29	8530286	0347	0408	0469	0530	0591	0652	0713	0773	0834	
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31	1504	1565	1626	1687	1748	1809	1870	1931	1992	2052	
32	2113	2174	2235	2296	2357	2418	2479	2540	2600	2661	
33	2722	2783	2814	2905	2966	3027	3088	3148	3209	3270	
34	3331	3392	3453	3514	3575	3635	3696	3757	3818	3879	
35	3940	4001	4062	4122	4183	4244	4305	4366	4427	4488	
36	4548	4609	4670	4731	4792	4853	4914	4974	5035	5096	
37	5157	5218	5279	5340	5400	5461	5522	5583	5644	5705	
38	5765	5826	5887	5948	6009	6070	6130	6191	6252	6313	
39	6374	6435	6495	6556	6617	6678	6739	6800	6860	6921	
7140	6982	7043	7104	7165	7225	7286	7347	7408	7469	7530	
41	7590	7651	7712	7773	7834	7894	7955	8016	8077	8138	
42	8198	8259	8320	8381	8442	8502	8563	8624	8685	[illegible]	
43	8807	8867	8928	8989	9050	9110	9171	9232	9293	9354	
44	9414	9475	9536	9597	9658	9718	9779	9840	9901	9962	
45	8540022	0083	0144	0205	0265	0326	0387	0448	0509	0569	
46	0630	0691	0752	0812	0873	0934	0995	1056	1116	1177	
47	1238	1299	1359	1420	1481	1542	1602	1663	1724	1785	
48	1845	1906	1967	2028	2088	2149	2210	2271	2331	2392	
49	2453	2514	2574	2635	2696	2757	2817	2878	2939	3000	
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7050	8481891	1953	2014	2076	2138	2199	2261	2322	2384	2446		
51	2507	2569	2630	2692	2754	2815	2877	2938	3000	3061		62
52	3123	3185	3246	3308	3369	3431	3493	3554	3616	3677		1 6
53	3739	3800	3862	3924	3985	4047	4108	4170	4231	4293		2 12 3 19
54	4355	4416	4478	4539	4601	4662	4724	4786	4847	4909		4 25
55	4970	5032	5093	5155	5216	5278	5340	5401	5463	5524		5 31
56	5586	5647	5709	5770	5832	5893	5955	6017	6078	6140		6 37 7 43
57	6201	6263	6324	6386	6447	6509	6570	6632	6693	6755		8 50
58	6817	6878	6940	7001	7063	7124	7186	7247	7309	7370		9 56
59	7432	7493	7555	7616	7678	7739	7801	7862	7924	7985		
7060	8047	8109	8170	8232	8293	8355	8416	8478	8539	8601		
61	8662	8724	8785	8847	8908	8970	9031	9093	9154	9216		
62	9277	9339	9400	9462	9523	9585	9646	9708	9769	9831		
63	9892	9954	$\overline{0}015$	0077	0138	0199	0261	0322	0384	0445		
64	8490507	0568	0630	0691	0753	0814	0876	0937	0999	1060		
65	1122	1183	1245	1306	1368	1429	1490	1552	1613	1675		
66	1736	1798	1859	1921	1982	2044	2105	2167	2228	2289		
67	2351	2412	2474	2535	2597	2658	2720	2781	2843	2904		
68	2965	3027	3088	3150	3211	3273	3334	3396	3457	3518		
69	3580	3641	3703	3764	3826	3887	3948	4010	4071	4133		
7070	4194	4256	4317	4378	4440	4501	4563	4624	4686	4747		
71	4808	4870	4931	4993	5054	5115	5177	5238	5300	5361		
72	5423	5484	5545	5607	5668	5730	5791	5852	5914	5975		
73	6037	6098	6159	6221	6282	6344	6405	6466	6528	6589		
74	6651	6712	6773	6835	6896	6958	7019	7080	7142	7203		
75	7264	7326	7387	7449	7510	7571	7633	7694	7755	7817		
76	7878	7940	8001	8062	8124	8185	8246	8308	8369	8431		
77	8492	8553	8615	8676	8737	8799	8860	8922	8983	9044		
78	9106	9167	9228	9290	9351	9412	9474	9535	9596	9658		
79	9719	9780	9842	9903	9965	$\overline{0}026$	0087	0149	0210	0271		
7080	8500333	0394	0455	0517	0578	0639	0701	0762	0823	0885		
81	0945	1007	1069	1130	1191	1253	1314	1375	1437	1498		
82	1559	1621	1682	1743	1805	1866	1927	1988	2050	2111		
83	2172	2234	2295	2356	2418	2479	2540	2602	2663	2724		
84	2786	2847	2908	2969	3031	3092	3153	3215	3276	3337		
85	3399	3460	3521	3582	3644	3705	3766	3828	3889	3950		
86	4011	4073	4134	4195	4257	4318	4379	4440	4502	4563		
87	4624	4686	4747	4808	4869	4931	4992	5053	5115	5176		
88	5237	5298	5360	5421	5482	5543	5605	5666	5727	5788		
89	5850	5911	5972	6034	6095	6156	6217	6279	6340	6401		
7090	6462	6524	6585	6646	6707	6769	6830	6891	6952	7014		
91	7075	7136	7197	7259	7320	7381	7442	7504	7565	7626		
92	7687	7749	7810	7871	7932	7993	8055	8116	8177	8238		61
93	8300	8361	8422	8483	8545	8606	8667	8728	8789	8851		1 6
94	8912	8973	9034	9095	9157	9218	9279	9340	9402	9463		2 12
95	9524	9585	9646	9708	9769	9830	9891	9952	$\overline{0}014$	0075		3 18 4 24
96	8510136	0197	0258	0320	0381	0442	0503	0564	0626	0687		5 31
97	0748	0809	0870	0932	0993	1054	1115	1176	1238	1299		6 37 7 43
98	1360	1421	1482	1544	1605	1666	1727	1788	1849	1911		8 49
99	1972	2033	2094	2155	2216	2278	2339	2400	2461	2522		9 55
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7100	8512583	2645	2706	2767	2828	2889	2950	3012	3073	3134		
01	3195	3256	3317	3379	3440	3501	3562	3623	3684	3746		[illegible]
02	3807	3868	3929	3990	4051	4112	4174	4235	4296	4357		1 6
03	4418	4479	4540	4602	4663	4724	4765	[illegible]	4907	4968		2 12
04	5030	5091	5152	5213	5274	5335	5396	5457	5519	5580		3 19
05	5641	5702	5763	5824	5885	5946	6008	6069	6130	6191		4 25
06	6252	6313	6374	6435	6496	6558	6619	6680	6741	6802		5 31
07	6863	6924	6985	7046	7108	7169	7230	7291	7352	7413		6 37
08	7474	7535	7596	7657	7719	7780	7841	7902	7963	8024		7 43
09	8085	8146	8207	8268	8329	8391	8452	8513	8574	8635		8 50
7110	8696	8757	8818	8879	8940	9001	9062	9124	9185	9246		9 56
11	9307	9368	9429	9490	9551	9612	9673	9734	9795	9856		
12	9917	9979	$\overline{0}040$	0101	0162	0223	0284	0345	0406	0467		
13	8520528	0589	0650	0711	0772	0833	0894	0955	1017	1078		
14	1139	1200	1261	1322	1383	1444	1505	1566	1627	1688		
15	1749	1810	1871	1932	1993	2054	2115	2176	2237	2298		
16	2359	2420	2481	2542	2604	2665	2726	2787	2848	2909		
17	2970	3031	3092	3153	3214	3275	3336	3397	3458	3519		
18	3580	3641	3702	3763	3824	3885	3946	4007	4068	4129		
19	4190	4251	4312	4373	4434	4495	4556	4617	4678	4739	61	
7120	4800	4861	4922	4983	5044	5105	5166	5227	5288	5349		
21	5410	5471	5532	5593	5654	5715	5776	5837	5898	5959		
22	6020	6081	6142	6203	6264	6325	6386	6447	6508	6568		
23	6629	6690	6751	6812	6873	6934	6995	7056	7117	7178		
24	7239	7300	7361	7422	7483	7544	7605	7666	7727	7788		
25	7849	7910	7971	8032	8092	8153	8214	8275	8336	8397		
26	8458	8519	8580	8641	8702	8763	8824	8885	8946	9007		
27	9068	9129	9189	9250	9311	9372	9433	9494	9555	9616		
28	9677	9738	9799	9860	9921	9982	$\overline{0}042$	0103	0164	0225		
29	8530286	0347	0408	0469	0530	0591	0652	0713	0773	0834		
7130	0895	0956	1017	1078	1139	1200	1261	1322	1383	1443		
31	1504	1565	1626	1687	1748	1809	1870	1931	1992	2052		
32	2113	2174	2235	2296	2357	2418	2479	2540	2600	2661		
33	2722	2783	2844	2905	2966	3027	3088	3148	3209	3270		
34	3331	3392	3453	3514	3575	3635	3696	3757	3818	3879		
35	3940	4001	4062	4122	4183	4244	4305	4366	4427	4488		
36	4549	4609	4670	4731	4792	4853	4914	4974	5035	5096		
37	5157	5218	5279	5340	5400	5461	5522	5583	5644	5705		
38	5765	5826	5887	5948	6009	6070	6130	6191	6252	6313		
39	6374	6435	6495	6556	6617	6678	6739	6800	6860	6921		
7140	6982	7043	7104	7165	7225	7286	7347	7408	7469	7530		
41	7590	7651	7712	7773	7834	7894	7955	8016	8077	8138		
42	8198	8259	8320	8381	8442	8502	8563	8624	8685	8746		61
43	8807	8867	8928	8989	9050	9110	9171	9232	9293	9354		1 6
44	9414	9475	9536	9597	9658	9718	9779	9840	9901	9962		2 12
45	8540022	0083	0144	0205	0265	0326	0387	0448	0509	0569		3 18 4 24
46	0630	0691	0752	0812	0873	0934	0995	1056	1116	1177		5 31
47	1238	1299	1359	1420	1481	1542	1602	1663	1724	1785		6 37 7 43
48	1845	1906	1967	2028	2088	2149	2210	2271	2331	2392		8 49
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52	4275	4336	4397	4457	4518	4579	4639	4700	4761	4822	
53	4882	4943	5004	5064	5125	5186	5247	5307	5368	5429	
54	5489	5550	5611	5671	5732	5793	5854	5914	5975	6036	
55	6096	6157	6218	6278	6339	6400	6461	6521	6582	6643	
56	6703	6764	6825	6885	6946	7007	7067	7128	7189	7249	
57	7310	7371	7432	7492	7553	7614	7674	7735	7796	7856	
58	7917	7978	8038	8099	8160	8220	8281	8342	8402	8463	
59	8524	8584	8645	8706	8766	8827	8888	[illegible]	9009	9070	
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63	0950	1010	1071	1131	1192	1253	1313	1374	1435	1495	
64	1556	1616	1677	1738	1798	1859	1919	1980	2041	2101	
65	2162	2223	2283	2344	2404	2465	2526	2586	2647	2707	
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67	3374	3435	3495	3556	3616	3677	3738	3798	3859	3919	
68	3980	4041	4101	4162	4222	4283	4343	4404	4465	4525	
69	4586	4646	4707	4768	4828	4889	4949	5010	5070	5131	
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71	5797	5858	5918	5979	6039	6100	6161	6221	6282	6342	
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75	8219	8280	8340	8401	8461	8522	8582	8643	8703	8764	
76	8824	8885	8945	9006	9066	9127	9187	9248	9308	9369	
77	9429	9490	9550	9611	9672	9732	9793	9853	9914	9974	
78	8560035	0095	0156	0216	0277	0337	0398	0458	0519	0579	
79	0640	0700	0761	0821	0882	0942	1002	1063	1123	1184	
7180	1244	1305	1365	1426	1486	1547	1607	1668	1728	1789	
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82	2454	2514	2575	2635	2696	2756	2817	2877	2938	[illegible]	
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84	3663	3724	3784	3845	3905	3965	4026	4086	4147	4207	
85	4268	4328	4389	4449	4509	4570	4630	4691	4751	4812	
86	4872	4933	4993	5053	5114	5174	5235	5295	5356	5416	
87	5476	5537	5597	5658	5718	5779	5839	5899	5960	6020	
88	6081	6141	6202	6262	6322	6383	6443	6504	6564	6624	
89	6685	6745	6806	6866	6926	6987	7047	7108	7168	7229	
7190	7281	7349	7410	7470	7531	7591	7651	7712	7772	7832	
91	7893	7953	8014	8074	8134	8195	8255	8316	8376	8436	
92	8497	8557	8618	8678	8738	8799	8859	8919	8980	9040	
93	9101	9161	9221	9282	9342	9402	9463	9523	9584	9644	
94	9704	9765	9825	9885	9946	0006	0067	0127	0187	0248	
95	8570308	0368	0429	0489	0549	0610	0670	0730	0791	0851	
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97	1515	1575	1636	1696	1756	1817	1877	1937	[illegible]	2058	
98	2118	2179	2239	2299	2360	2420	2480	2541	[illegible]	2661	
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04	5608	5667	5727	5786	5845	5905	5964	6024	6083	6143
05	6202	6262	6321	6381	6440	6499	6559	6618	6678	6737
06	6797	6856	6916	6975	7034	7094	7153	7213	7272	7332
07	7391	7451	7510	7569	7629	7688	7748	7807	7867	7926
[illegible]	7985	8045	8104	8164	8223	8283	8342	8401	8461	[illegible]
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11	9768	9827	9887	9946	0005	0065	0124	0184	0243	0302
12	8640362	0421	0481	0540	0599	0659	0718	0778	0837	0896
13	0956	1015	1075	1134	1193	1253	1312	1371	1431	1490
14	1550	1609	1668	1728	1787	1846	1906	1965	2025	2084
15	2143	2203	2262	2321	2381	2440	2500	2559	2618	2678
16	2737	2796	2856	2915	2974	3034	3093	3152	3212	3271
17	3331	3390	3449	3509	3568	3627	3687	3746	3805	3865
[illegible]	3924	3983	4043	4102	4161	4221	4280	4339	4399	4458
19	4517	4577	4636	4695	4755	4814	4873	4933	4992	5051
7320	5111	5170	5229	5289	5348	5407	5467	5526	5585	5645
21	5704	5763	5823	5882	5941	6001	6060	6119	6179	6238
22	6297	6357	6416	6475	6534	6594	6653	6712	6772	6831
23	6890	6950	7009	7068	7128	7187	7246	7305	7365	7424
24	7483	7543	7602	7661	7721	7780	7839	7898	7958	8017
25	8076	8136	8195	8254	8313	8373	8432	8491	8551	8610
26	8669	8728	8788	8847	8906	8966	9025	9084	9143	9203
27	9262	9321	9380	9440	9499	9558	9618	9677	9736	9795
28	9855	9914	9973	0032	0092	0151	0210	0269	0329	0388
29	8650447	0506	0566	0625	0684	0743	0803	0862	0921	0980
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32	2225	2284	2343	2402	2461	2521	2580	2639	2698	2758
33	2817	2876	2935	2995	3054	3113	3172	3231	3291	3350
34	3409	3468	3527	3587	3646	3705	3764	3824	3883	3942
35	4001	4060	4120	4179	4238	4297	4356	4416	4475	4534
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38	5777	5836	5895	5955	6014	6073	6132	6191	6251	6310
39	6369	6428	6487	6546	6606	6665	6724	6783	6842	6901
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43	8735	8794	8854	8913	8972	9031	9090	9149	9208	9268
44	9327	9386	9445	9504	9563	9622	9681	9741	9800	9859
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47	1100	1160	1219	1278	1337	1396	1455	1514	1573	1632
48	1691	1751	1810	1869	1928	1987	2046	2105	2164	2223
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7598	7657	7716	7775	7834	7893	7952	8011	8070	8129		7 41
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8778	8837	8896	8955	9014	9073	9132	9191	9250	9309	59	9 53
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1740	1799	1858	1917	1976	2035	2093	2152	2211	2270		
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4093	4152	4211	4269	4328	4387	4446	4505	4563	4622		
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5269	5328	5386	5445	5504	5563	5622	5680	5739	5798		
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7032	7091	7150	7208	7267	7326	7385	7443	7502	7561		
7620	7678	7737	7796	7855	7913	7972	8031	8090	8148		58
8207	8266	8325	8383	8442	8501	8560	8618	8677	8736		1 6
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1143	1202	1261	1319	1378	1437	1495	1554	1613	1672		6 35 7 41
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02	3491	3549	3608	3667	3725	3784	3843	3901	3960	4019
[illegible]	4077	4136	4195	4253	4312	4371	4429	4488	4547	4605
04	4664	4723	4781	4840	4899	[illegible]	5016	5075	5133	5192
05	5251	5309	5368	5427	5485	5544	5603	5661	5720	5778
[illegible]	5837	5896	5954	6013	6072	6130	6189	6248	[illegible]	6365
[illegible]	6423	6482	[illegible]	6599	6658	6717	6775	6834	6892	6951
[illegible]	7010	7068	7127	7186	7244	7303	7361	7420	7479	7537
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7410	8182	8241	8299	8358	8417	8475	8534	8592	8651	8710
11	8768	[illegible]	[illegible]	8944	[illegible]	9061	9120	9178	9237	9296
12	9354	9413	9471	9530	9588	9647	9706	9764	9823	9881
13	9940	9999	0̄057	0116	0174	0233	0292	0350	0409	0467
14	8700526	0584	0643	0702	0760	0819	0877	0936	0994	1053
15	1112	1170	1229	1287	1346	1404	1463	1522	1580	1639
16	1697	1756	1814	1873	[illegible]	1990	2049	2107	2166	2224
17	2283	[illegible]	2400	2458	2517	2576	[illegible]	2693	2751	2810
[illegible]	2868	2927	2985	3044	3102	3161	3220	3278	3337	3395
19	3454	3512	3571	3629	3688	3746	3805	3863	3922	3981
7420	4039	4098	4156	4215	4273	4332	4390	4449	4507	4566
21	4624	4683	4741	4800	4858	4917	4975	5034	5092	5151
22	5210	5268	5327	5385	5444	5502	5561	5619	5678	5736
23	5795	5853	5912	5970	6029	6087	6146	6204	6263	6321
24	6380	6438	6497	6555	6614	6672	6731	6789	6848	6906
25	6965	7023	7082	7140	7199	7257	7316	7374	7432	7491
26	7549	7608	7666	7725	7783	7842	7900	7959	8017	8076
27	8134	8193	8251	8310	8368	8427	8485	8544	8602	8660
28	8719	8777	8836	8894	8953	9011	9070	9128	9187	9245
29	9304	9362	9421	9479	9537	9596	9654	9713	9771	9830
7430	9888	9947	0̄005	[illegible]	0122	0180	0239	0297	0356	0414
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33	1641	1700	1758	1817	1875	1933	1992	2050	2109	2167
34	2226	2284	2342	2401	2459	2518	2576	2634	2693	2751
35	2810	[illegible]	2927	2985	[illegible]	3102	3160	3219	3277	3335
36	3394	3452	3511	3569	[illegible]	3686	3744	3803	3861	3919
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41	6313	6371	6430	6488	6546	6605	6663	6722	6780	6838
42	6897	6955	7013	7072	7130	7188	7247	7305	7363	7422
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[illegible]	8064	[illegible]	8180	8239	8297	8355	8414	8472	8530	8589
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52	4055	4114	4173	4232	4291	4350	4409	4468	4528	4587		1 6
53	4646	4705	4764	4823	4882	4941	5000	5059	5118	5177		2 12
54	5236	5295	5354	5413	5472	5532	5591	5650	5709	5768		3 18 4 24
55	5827	5886	5945	6004	6063	6122	6181	6240	6299	6358		5 30 6 35
56	6417	6476	6535	6594	6653	6712	6771	6830	6889	6949		7 41
57	7008	7067	7126	7185	7244	7303	7362	7421	7480	7539		8 47
58	7598	7657	7716	7775	7834	7893	7952	8011	8070	8129		9 53
59	8188	8247	8306	8365	8424	8483	8542	8601	8660	8719		
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61	9368	9427	9486	9545	9604	9663	9722	9781	9840	9899		
62	9958	0017	0076	0135	0194	0253	0312	0371	0430	0489		
63	8670548	0607	0666	0725	0784	0843	0902	0961	1020	1079		
64	1138	1197	1256	1315	1374	1433	1492	1551	1610	1669		
65	1728	1786	1845	1904	1963	2022	2081	2140	2199	2258		
66	2317	2376	2435	2494	2553	2612	2671	2730	2789	2848		
67	2907	2966	3025	3084	3142	3201	3260	3319	3378	3437		
68	3496	3555	3614	3673	3732	3791	3850	3909	3968	4027		
69	4086	4145	4203	4262	4321	4380	4439	4498	4557	4616		
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86	4093	4152	4211	4269	4328	4387	4446	4505	4563	4622		
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92	7620	7678	7737	7796	7855	7913	7972	8031	8090	8148		58
93	8207	8266	8325	8383	8442	8501	8560	8618	8677	8736		1 6
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04	2928	2986	3044	3102	3160	3218	3275	[illegible]	3391	3449	
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07	4664	4722	4780	4838	4896	4953	5011	5069	5127	5185	
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09	5821	5879	5937	5995	6052	6110	6168	6226	6284	6342	
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11	6978	7035	7093	7151	7209	7267	7325	7382	7440	7498	
12	7556	7614	7671	7729	7787	7845	7903	7960	8018	[illegible]	
13	8134	8192	8249	8307	8365	8423	8481	8539	8596	8654	
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19	1601	1659	1716	1774	1832	1890	1947	2005	2063	2121	
7520	2178	2236	2294	2352	2409	2467	2525	2583	2640	2698	
21	2756	2814	2871	2929	2987	3045	3102	3160	3218	3276	
22	3333	3391	3449	3506	3564	3622	3680	3737	3795	[illegible]	
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24	4488	4546	4603	4661	4719	4776	4834	4892	4950	5007	
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34	8770256	0314	0371	0429	0487	0544	[illegible]	0660	0717	0775	
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37	1985	2043	2100	2158	2216	2273	2331	2388	2446	2504	
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43	5441	5499	5556	5614	5671	5729	5787	5844	[illegible]	5959	
44	6017	[illegible]	6132	6189	[illegible]	6305	6362	6420	6477	6535	
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49	8894	8952	9009	9067	9124	9182	9239	9297	9354	9412	
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8089	8147	8204	8262	8319	8376	8434	8491	8549	8606		
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04	8810421	0478	0535	0592	0650	0707	0764	0821	0878	0935	
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13	5558	5615	5672	5729	5786	5844	5901	5958	6015	6072	
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18	8410	8467	8524	8581	8638	8695	8752	8809	8866	8923	
19	8980	9037	9094	9151	9208	9265	9322	9379	9436	9493	57
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28	4107	4164	4221	4278	4335	4392	4448	4505	4562	4619	
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47	4911	4968	5024	5081	5138	5195	5252	5308	5365	5422	
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3988	4045	4102	4158	4215	4272	4328	4385	4442	4498		
4555	4612	4668	4725	4782	4838	4895	4952	5008	5065		
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8699	8755	8812	8868	8925	8981	9037	9094	9150	9207		
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9828	9885	9941	9998	$\overline{0}$054	0110	0167	0223	0280	0336		1 6
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1522	1578	1635	1691	1748	1804	1860	1917	1973	2030		4 22
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2651	2707	2763	2820	2876	2933	2989	3046	3102	3158		6 34
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3779	3835	3892	3948	4005	4061	4118	4174	4230	4287		8 45
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02	9279	9336	9393	9450	9507	9564	9621	9679	9736	9793		2 12
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04	8810421	0478	0535	0592	0650	0707	0764	0821	0878	0935		4 23
05	0992	1049	1106	1163	1221	1278	1335	1392	1449	1506		5 29
06	1563	1620	1677	1735	1792	1849	1906	1963	2020	2077		6 35
07	2134	2191	2248	2305	2363	2420	2477	2534	2591	2648		7 41
08	2705	2762	2819	2876	2933	2990	3048	3105	3162	3219		8 46
09	3276	3333	3390	3447	3504	3561	3618	3675	3732	3789		9 52
7610	3847	3904	3961	4018	4075	4132	4189	4246	4303	4360		
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12	4988	5045	5102	5159	5216	5273	5330	5387	5444	5501		
13	5558	5615	5672	5729	5786	5844	5901	5958	6015	6072		
14	6129	6186	6243	6300	6357	6414	6471	6528	6585	6642		
15	6699	6756	6813	6870	6927	6984	7041	7098	7155	7212		
16	7269	7326	7383	7440	7497	7554	7611	7669	7726	7783		
17	7840	7897	7954	8011	8068	8125	8182	8239	8296	8353		
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19	8980	9037	9094	9151	9208	9265	9322	9379	9436	9493	57	
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21	8820120	0177	0234	0291	0348	0405	0462	0519	0575	0632		
22	0689	0746	0803	0860	0917	0974	1031	1088	1145	1202		
23	1259	1316	1373	1430	1487	1544	1601	1658	1715	1772		
24	1829	1886	1943	2000	2057	2114	2171	2228	2285	2342		
25	2398	2455	2512	2569	2626	2683	2740	2797	2854	2911		
26	2968	3025	3082	3139	3196	3253	3310	3367	3424	3481		
27	3537	3594	3651	3708	3765	3822	3879	3936	3993	4050		
28	4107	4164	4221	4278	4335	4392	4448	4505	4562	4619		
29	4676	4733	4790	4847	4904	4961	5018	5075	5132	5188		
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35	8090	8147	8204	8261	8318	8375	8432	8489	8545	8602		
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38	9797	9853	9910	9967	0024	0081	0138	0195	0251	0308		
39	8830365	0422	0479	0536	0593	0649	0706	0763	0820	0877		
7640	0934	0990	1047	1104	1161	1218	1275	1331	1388	1445		
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42	2070	2127	2184	2241	2298	2354	2411	2468	2525	2582		1 6
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45	3775	3832	3889	3945	4002	4059	4116	4173	4229	4286		4 23
46	4343	4400	4457	4513	4570	4627	4684	4741	4797	4854		5 29
47	4911	4968	5024	5081	5138	5195	5252	5308	5365	5422		6 34
48	5479	5536	5592	5649	5706	5763	5819	5876	5933	5990		7 40
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52	4138	4194	4250	4306	4362	4418	4474	4530	4586	4642		1 6
53	4698	4754	4810	4866	4922	4978	5034	5090	5146	5202		2 11
54	5258	5314	5370	5426	5482	5538	5594	5650	5706	5762	56	3 17
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57	6938	6994	7050	7106	7162	7218	7274	7330	7386	7442		6 34
58	7498	7554	7610	7666	7722	7778	7834	7890	7946	8002		7 39
59	8058	8113	8169	8225	8281	8337	8393	8449	8505	8561		8 45 9 50
7760	8617	8673	8729	8785	8841	8897	8953	9009	9065	9121		
61	9177	9233	9289	9345	9401	9457	9513	9569	9624	9680		
62	9736	9792	9848	9904	9960	0̄016	0072	0128	0184	0240		
63	8900296	0352	0408	0464	0520	0576	0632	0687	0743	0799		
64	0855	0911	0967	1023	1079	1135	1191	1247	1303	1359		
65	1415	1471	1526	1582	1638	1694	1750	1806	1862	1918		
66	1974	2030	2086	2142	2198	2253	2309	2365	2421	2477		
67	2533	2589	2645	2701	2757	2813	2869	2924	2980	3036		
68	3092	3148	3204	3260	3316	3372	3428	3484	3539	3595		
69	3651	3707	3763	3819	3875	3931	3987	4043	4098	4154		
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72	5328	5384	5440	5496	5551	5607	5663	5719	5775	5831		
73	5887	5943	5998	6054	6110	6166	6222	6278	6334	6389		
74	6445	6501	6557	6613	6669	6725	6781	6836	6892	6948		
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76	7563	7618	7674	7730	7786	7842	7898	7953	8009	8065		
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78	8679	8735	8791	8847	8903	8959	9014	9070	9126	9182		
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82	0912	0968	1024	1080	1135	1191	1247	1303	1359	1415		
83	1470	1526	1582	1638	1694	1749	1805	1861	1917	1972		
84	2028	2084	2140	2196	2251	2307	2363	2419	2475	2530		
85	2586	2642	2698	2754	2809	2865	2921	2977	3032	3088		
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87	3702	3758	3813	3869	3925	3981	4036	4092	4148	4204		
88	4259	4315	4371	4427	4482	4538	4594	4650	4706	4761		
89	4817	4873	4929	4984	5040	5096	5152	5207	5263	5319		
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91	5932	5988	6044	6099	6155	6211	6266	6322	6378	6434		
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93	7047	7102	7158	7214	7270	7325	7381	7437	7493	7548		1 6
94	7604	7660	7715	7771	7827	7883	7938	7994	8050	8105		2 11 3 17
95	8161	8217	8273	8328	8384	8440	8495	8551	8607	8663		4 22
96	8718	8774	8830	8885	8941	8997	9053	9108	9164	9220		5 28 6 33
97	9275	9331	9387	9442	9498	9554	9610	9665	9721	9777		7 39
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04	3173	3228	3284	3340	3395	3451	3506	3562	3618	3673	
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06	4285	4341	4397	4452	4508	4564	4619	4675	4731	4786	
07	4842	4897	4953	5009	5064	5120	5176	5231	5287	5342	
08	5398	5454	5509	5565	5621	5676	5732	5787	5843	5899	
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11	7066	7122	7178	7233	7289	7344	7400	7456	7511	7567	
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13	8178	8234	8289	8345	8401	8456	8512	8567	8623	8678	
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18	0957	1012	1068	1123	1179	1234	1290	1345	1401	1457	
19	1512	1568	1623	1679	1734	1790	1845	1901	1956	2012	
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23	3733	3789	3844	3900	3955	4011	4066	4122	4177	4233	
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27	5953	6009	6064	6120	6175	6231	6286	6342	6397	6453	
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31	8172	8228	8283	8339	8394	8450	8505	8560	8616	8671	
32	8727	8782	8838	8893	8949	9004	9059	9115	9170	9226	
33	9281	9337	9392	9448	9503	9558	9614	9669	9725	9780	
34	9836	9891	9947	0002	0057	0113	0168	0224	0279	0335	
35	8940390	0445	0501	0556	0612	0667	0723	0778	0833	0889	
36	0944	1000	1055	1111	1166	1221	1277	1332	1388	1443	
37	1498	1554	1609	1665	1720	1776	1831	1886	1942	1997	
38	2053	2108	2163	2219	2274	2330	2385	2440	2496	2551	
39	2607	2662	2717	2773	2828	2884	2939	2994	3050	3105	
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41	3715	3770	3825	3881	3936	3991	4047	4102	4158	4213	
42	4268	4324	4379	4435	4490	4545	4601	4656	4711	4767	
43	4822	4878	4933	4988	5044	5099	5154	5210	5265	5320	
44	5376	5431	5487	5542	5597	5653	5708	5763	5819	5874	
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4778	4833	4888	4944	4999	5054	5109	5165	5220	5275		
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5883	5938	5993	6048	6104	6159	6214	[illegible]	6325	6380		
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5171	5226	5281	5336	5391	5446	5501	5556	5611	5666		7 39
5721	5776	5831	5886	5941	5996	6051	6106	6161	6216		8 44
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02	7370	7425	7480	7535	7590	7645	7700	7755	7810	7865	
03	7920	7975	8030	8085	8140	8195	8250	8304	8359	8414	
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07	8980117	0172	0227	0282	0337	0392	0447	0502	0557	0612	
08	0667	0722	0776	0831	0886	0941	0996	1051	1106	1161	
09	1216	1271	1326	1380	1435	1490	1545	1600	1655	1710	
7910	1765	1820	1875	1930	1984	2039	2094	2149	2204	2259	
11	2314	2369	2424	2479	2533	2588	2643	2698	2753	2808	
12	2863	2918	2973	3027	3082	3137	3192	3247	3302	3357	
13	3412	3467	3521	3576	3631	3686	3741	3796	3851	3906	
14	3960	4015	4070	4125	4180	4235	4290	4345	4399	4454	
15	4509	4564	4619	4674	4729	4784	4838	4893	4948	5003	
16	5058	5113	5168	5222	5277	5332	5387	5442	5497	5552	
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18	6155	6210	6265	6320	6374	6429	6484	6539	6594	6649	
19	6703	6758	6813	6868	6923	6978	7032	7087	7142	7197	
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22	8348	8403	8458	8513	8568	8622	8677	8732	8787	8842	
23	8897	8951	9006	9061	9116	9171	9225	9280	9335	9390	
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26	8990541	0595	0650	0705	0760	0815	0869	0924	0979	1034	
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29	2184	2239	2294	2348	2403	2458	2513	2568	2622	2677	
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32	3827	3882	3937	3991	4046	4101	4156	4210	4265	4320	
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35	5469	5524	5579	5634	5688	5743	5798	5852	5907	[illegible]	
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37	6564	6619	6673	6728	6783	6837	6892	6947	7002	7056	
38	7111	7166	7220	7275	7330	7384	7439	7494	7549	7603	
39	7658	7713	7767	7822	7877	7932	7986	8041	8096	8150	
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42	9299	9354	9408	9463	9518	9572	9627	9682	9736	9791	
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44	9000392	0447	0502	0556	0611	[illegible]	0720	0775	0830	0884	
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47	2032	2087	2141	2196	2251	2305	2360	2415	2469	2524	
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13	7951	8006	8060	8114	8168	8222	8277	8331	8385	8439		
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15	9035	9089	9144	9198	9252	9306	9360	9415	9469	9523		
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0080022	0076	0129	0183	0237	0290	0344	0398	0451	0505		
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05	7530	7584	7637	7691	7745	7798	7852	7905	7959	8012	
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13	1815	1868	1922	1975	2029	2082	2136	2189	2243	2297	
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17	3955	4009	4062	4116	4169	4223	4276	4330	4383	4437	
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19	5025	5079	5132	5186	5239	5293	5346	5400	5453	5507	
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36	4109	4163	4216	4270	4323	4376	4430	4483	4536	4590	
37	4643	4697	4750	4803	4857	4910	4963	5017	5070	5123	
38	5177	5230	5284	5337	5390	5444	5497	5550	5604	5657	
39	5710	5764	5817	5871	5924	5977	6031	6084	6137	6191	
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4240	4293	4346	4399	4453	4506	4559	4612	4666	4719		5 27
4772	4825	4879	4932	4985	5038	5092	5145	5198	5251		6 32
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5837	5890	5943	5997	6050	6103	6156	6210	6263	6316		8 43
6369	6423	6476	6529	6582	6635	6689	6742	6795	6848		9 49
6902	6955	7008	7061	7114	7168	7221	7274	7327	7381		
7434	7487	7540	7593	7647	7700	7753	7806	7859	7913		
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8498	8551	8604	8658	8711	8764	8817	8870	8924	8977		
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9120094	0147	0200	0253	0306	0360	0413	0466	0519	0572		
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1689	1742	1795	1848	1902	1955	2008	2061	2114	2167		
2221	2274	2327	2380	2433	2486	2539	2593	2646	2699		
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3284	3337	3390	3443	3496	3549	3602	3656	3709	3762		
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4346	4399	4453	4506	4559	4612	4665	4718	4771	4824		
4878	4931	4984	5037	5090	5143	5196	5249	5303	5356		
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2309	2362	2415	2468	2521	2574	2627	2680	2733	2786		
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7079	7132	7185	7238	7291	7344	7397	7450	7503	7556		7 37 8 42
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06	1315	1368	1421	1474	1527	1580	1633	1686	1738	1791	
07	1844	1897	1950	2003	2056	2109	2162	2215	2268	2321	
08	2373	2426	2479	2532	2585	2638	2691	2744	2797	2850	
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8210	3432	3484	3537	3590	3643	3696	3749	3802	3855	[illegible]	
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14	5547	5600	5653	5706	5758	5811	5864	5917	5970	6023	
15	6076	6129	6181	6234	6287	6340	6393	6446	6499	6551	
16	6604	6657	6710	6763	6816	6869	6921	6974	7027	7080	
17	7133	7186	7239	7291	7344	7397	7450	7503	7556	7609	
18	7661	7714	7767	7820	7873	7926	7978	8031	8084	8137	
19	8190	8243	8295	8348	8401	8454	8507	8560	8613	8665	
8220	8718	8771	8824	8877	8930	8982	9035	9088	9141	9194	
21	9246	9299	9352	9405	9458	9511	9563	9616	9669	9722	
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36	7163	7216	7269	7322	7374	7427	7480	7532	7585	7638	
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39	8745	8798	8850	8903	8956	9009	9061	9114	9167	9219	
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45	1907	1959	2012	2065	2117	2170	2223	2275	2328	2381	
46	2433	2486	2539	2591	2644	2697	2749	2802	2855	2907	
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48	3487	3539	3592	3644	3697	3750	[illegible]	3855	3908	3960	
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5066	5119	5171	5224	5276	5329	5382	5434	5487	5540		53
5592	5645	5697	5750	5803	5855	5908	5961	6013	6066		1 5
6118	6171	6224	6276	6329	6382	6434	6487	6539	6592		2 11
6645	6697	6750	6802	6855	6908	6960	7013	7066	7118		3 16 4 21
7171	7223	7276	7329	7381	7434	7486	7539	7592	7644		5 27
7697	7749	7802	7855	7907	7960	8012	8065	8118	8170		6 32
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8749	8801	8854	8907	8959	9012	9064	9117	9169	9222		8 42
9275	9327	9380	9432	9485	9538	9590	9643	9695	9748		9 48
9800	9853	9906	9958	0̄011	0063	0116	0169	0221	0274		
170326	0379	0431	0484	0537	0589	0642	0694	0747	0799		
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1378	1430	1483	1535	1588	1640	1693	1745	1798	1851		
1903	1956	2008	2061	2113	2166	2218	2271	2323	2376		
2429	2481	2534	2586	2639	2691	2744	2796	2849	2901		
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1877	1929	1981	2034	2086	2139	2191	2244	2296	2348		
2401	2453	2506	2558	2611	2663	2715	2768	2820	2873		
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5545	5598	5650	5702	5755	5807	5860	5912	5964	6017		
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7117	7169	7221	7274	7326	7378	7431	7483	7536	7588		1 5
7640	7693	7745	7797	7850	7902	7954	8007	8059	8112		2 10 3 16
8164	8216	8269	8321	8373	8426	8478	8530	8583	8635		4 21
8687	8740	8792	8844	8897	8949	9002	9054	9106	9159		5 26
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9734	9787	9839	9891	9944	9996	0̄048	0101	0153	0205		7 36 8 42
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02	1827	1880	1932	1984	2037	2089	2141	2193	2246	2298	
03	2350	2403	2455	2507	[illegible]	2612	2664	2717	2769	2821	
04	2873	2926	2978	3030	3083	3135	3187	3239	3292	3344	
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06	3919	3972	4024	4076	4128	4181	4233	4285	4338	4390	
07	4442	4494	4547	4599	4651	4703	4756	[illegible]	[illegible]	4913	
08	4965	5017	5069	5122	5174	5226	5279	5331	[illegible]	5435	
09	5488	5540	5592	5644	5697	5749	5801	5853	5906	5958	
8310	6010	6062	6115	6167	6219	6272	6324	6376	6428	6481	
11	6533	6585	6637	6690	6742	6794	6846	6899	6951	7003	
12	7055	7108	7160	7212	7264	7317	7369	7421	7473	7526	
13	7578	7630	7682	7735	7787	7839	7891	7943	[illegible]	8048	
14	8100	8152	8205	8257	8309	8361	8414	8466	8518	8570	
15	8623	8675	8727	8779	8831	8884	8936	8988	9040	9093	
16	9145	9197	9249	9301	9354	9406	9458	9510	[illegible]	9615	
17	9667	9719	9771	9824	9876	9928	9980	0033	0085	0137	
18	9200189	0241	0294	0346	0398	0450	0502	0555	0607	0659	
19	0711	0763	0816	0868	0920	0972	1024	1077	[illegible]	1181	
8320	1233	1285	1338	1390	1442	1494	1546	1599	1651	1703	
21	1755	1807	1860	1912	1964	2016	2068	2121	2173	2225	
22	2277	2329	2381	2434	2486	2538	2590	2642	2695	2747	
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28	5407	5459	5511	5564	5616	5668	5720	5772	5824	5876	
29	5929	5981	6033	6085	6137	6189	6241	6294	6346	6398	
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31	6971	7023	7076	7128	7180	7232	7284	7336	7388	[illegible]	
32	7493	7545	7597	7649	7701	7753	7805	7857	7910	7962	
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34	8535	8587	8639	8691	8743	8796	8848	8900	8952	9004	
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39	1140	1192	1244	1296	1348	1400	1452	1504	1556	1608	
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42	2702	2754	2806	2858	2910	2962	3014	3066	3118	3170	
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46	4784	4836	4888	4940	4992	5044	5096	5148	5200	5252	
47	5304	5356	5408	5460	5512	5564	5616	5668	5720	5772	
48	5824	5876	5928	5980	6032	6085	6137	6189	6241	6293	
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56	7697	7749	7802	7855	7907	7960	8012	8065	8118	8170	
57	8223	8275	8328	8381	8433	8486	8538	8591	8644	8696	
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8260	9800	9853	9906	9958	0011	0063	0116	0169	0221	0274	
61	9170326	0379	0431	0484	0537	0589	0642	0694	0747	0799	
62	0852	0904	0957	1010	1062	1115	1167	1220	1272	1325	
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64	1903	1956	2008	2061	2113	2166	2218	2271	2323	2376	
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66	2954	3007	3059	3112	3164	3217	3269	3322	3374	3427	
67	3479	3532	3584	3637	3690	3742	3795	3847	3900	3952	
68	4005	4057	4110	4162	4215	4267	4320	4372	4425	4477	
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76	8205	8257	8310	8362	8415	8467	8520	8572	8625	8677	
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83	1877	1929	1981	2034	2086	2139	2191	2244	2296	2348	
84	2401	2453	2505	2558	2611	2663	2715	2768	2820	2873	
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86	3449	3502	3554	3607	3659	3711	3764	3816	3869	3921	
87	3973	4026	4078	4131	4183	4235	4288	4340	4393	4445	
88	4497	4550	4602	4655	4707	4759	4812	4864	4917	4969	
89	5021	5074	5126	5179	5231	5283	5336	5388	5441	5493	
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91	6069	6122	6174	6226	6279	6331	6383	6436	6488	6541	
92	6593	6645	6698	6750	6802	6855	6907	6960	7012	7064	
93	7117	7169	7221	7274	7326	7378	7431	7483	7536	7588	
94	7640	7693	7745	7797	7850	7902	7954	8007	8059	8112	
95	8164	8216	8269	8321	8373	8426	8478	8530	8583	8635	
96	8687	8740	8792	8844	8897	8949	9002	9054	9106	9159	
97	9211	9263	9316	9368	9420	9473	9525	9577	9630	9682	
98	9734	9787	9839	9891	9944	9996	0048	0101	0153	0205	
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02	3827	3878	3930	3982	4034	4085	4137	4189	4240	4292		1 5
03	4344	4395	4447	4499	4550	4602	4654	4705	4757	4809		2 10
04	4860	4912	4964	5015	5067	5119	5170	5222	5274	5326		3 16
05	5377	5429	5481	5532	5584	5636	5687	5739	5791	5842		4 21
06	5894	5946	5997	6049	6101	6152	6204	6255	6307	6359		5 26
07	6410	6462	6514	6565	6617	6669	6720	6772	6824	6875		6 31
08	6927	6979	7030	7082	7134	7185	7237	7289	7340	7392		7 36
09	7444	7495	7547	7598	7650	7702	7753	7805	7857	7908		8 42 9 47
8410	7960	8012	8063	8115	8167	8218	8270	8321	8373	8425		
11	8476	8528	8580	8631	8683	8734	8786	8838	8889	8941		
12	8993	9044	9096	9148	9199	9251	9302	9354	9406	9457		
13	9509	9561	9612	9664	9715	9767	9819	9870	9922	9973		
14	9250025	0077	0128	0180	0232	0283	0335	0386	0438	0490		
15	0541	0593	0644	0696	0748	0799	0851	0902	0954	1006		
16	1057	1109	1160	1212	1264	1315	1367	1418	1470	1522		
17	1573	1625	1676	1728	1780	1831	1883	1934	1986	2038		
18	2089	2141	2192	2244	2296	2347	2399	2450	2502	2554		
19	2605	2657	2708	2760	2811	2863	2915	2966	3018	3069		
8420	3121	3172	3224	3276	3327	3379	3430	3482	3534	3585		
21	3637	3688	3740	3791	3843	3895	3946	3998	4049	4101		
22	4152	4204	4256	4307	4359	4410	4462	4513	4565	4616		
23	4668	4720	4771	4823	4874	4926	4977	5029	5080	5132		
24	5184	5235	5287	5338	5390	5441	5493	5544	5596	5648		
25	5699	5751	5802	5854	5905	5957	6008	6060	6111	6163		
26	6215	6266	6318	6369	6421	6472	6524	6575	6627	6678		
27	6730	6781	6833	6885	6936	6988	7039	7091	7142	7194		
28	7245	7297	7348	7400	7451	7503	7554	7606	7657	7709		
29	7761	7812	7864	7915	7967	8018	8070	8121	8173	8224		
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31	8791	8842	8894	8945	8997	9048	9100	9151	9203	9254		
32	9306	9357	9409	9460	9512	9563	9615	9667	9718	9770		
33	9821	9873	9924	9975	0027	0078	0130	0181	0233	0284		
34	9260336	0387	0439	0490	0542	0593	0645	0696	0748	0799		
35	0851	0902	0954	1005	1057	1108	1160	1211	1263	1314		
36	1366	1417	1469	1520	1572	1623	1675	1726	1778	1829		
37	1880	1932	1983	2035	2086	2138	2189	2241	2292	2344		
38	2395	2447	2498	2550	2601	2653	2704	2755	2807	2858		
39	2910	2961	3013	3064	3116	3167	3219	3270	3322	3373		
8440	3424	3476	3527	3579	3630	3682	3733	3785	3836	3888		
41	3939	3990	4042	4093	4145	4196	4248	4299	4351	4402		
42	4453	4505	4556	4608	4659	4711	4762	4814	4865	4916		51
43	4968	5019	5071	5122	5174	5225	5277	5328	5379	5431		1 5
44	5482	5534	5585	5637	5688	5739	5791	5842	5894	5945		2 10
45	5997	6048	6099	6151	6202	6254	6305	6357	6408	6459		3 15 4 20
46	6511	6562	6614	6665	6716	6768	6819	6871	6922	6974		5 26
47	7025	7076	7128	7179	7231	7282	7333	7385	7436	7488		6 31
48	7539	7590	7642	7693	7745	7796	7847	7899	7950	8002		7 36 8 41
49	8053	8105	8156	8207	8259	8310	8362	8413	8464	8516		9 46
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9081	9132	9184	9235	9287	9338	9389	9441	9492	9543		52
9595	9646	9698	9749	9800	9852	9903	9955	0̄006	0057		1 5
0270109	0160	0211	0263	0314	0366	0417	0468	0520	0571		2 10
0622	0674	0725	0777	0828	0879	0931	0982	1033	1085		3 16
1136	1187	1239	1290	1342	1393	1444	1496	1547	1598		4 21
1650	1701	1752	1804	1855	1907	1958	2009	2061	2112		5 26
2163	2215	2266	2317	2369	2420	2471	2523	2574	2625		6 31
2677	2728	2780	2831	2882	2934	2985	3036	3088	3139		7 36
3190	3242	3293	3344	3396	3447	3498	3550	3601	3652		8 42
3704	3755	3806	3858	3909	3960	4012	4063	4114	4166		9 47
4217	4268	4320	4371	4422	4474	4525	4576	4628	4679		
4730	4782	4833	4884	4935	4987	5038	5089	5141	5192		
5243	5295	5346	5397	5449	5500	5551	5603	5654	5705		
5757	5808	5859	5910	5962	6013	6064	6116	6167	6218		
6270	6321	6372	6424	6475	6526	6577	6629	6680	6731		
6783	6834	6885	6937	6988	7039	7090	7142	7193	7244		
7296	7347	7398	7449	7501	7552	7603	7655	7706	7757		
7808	7860	7911	7962	8014	8065	8116	8167	8219	8270		
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9347	9398	9449	9501	9552	9603	9654	9706	9757	9808		
9859	9911	9962	0̄013	0065	0116	0167	0218	0270	0321		
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0885	0936	0987	1038	1090	1141	1192	1243	1295	1346		
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2422	2473	2524	2576	2627	2678	2729	2780	2832	2883		
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3959	4010	4061	4112	4163	4215	4266	4317	4368	4419		
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4983	5034	5085	5136	5187	5239	5290	5341	5392	5443		
5495	5546	5597	5648	5699	5751	5802	5853	5904	5955		
6007	6058	6109	6160	6211	6263	6314	6365	6416	6467		
6518	6570	6621	6672	6723	6774	6826	6877	6928	6979		
7030	7081	7133	7184	7235	7286	7337	7389	7440	7491		
7542	7593	7644	7696	7747	7798	7849	7900	7951	8003		
8054	8105	8156	8207	8258	8310	8361	8412	8463	8514		
8565	8616	8668	8719	8770	8821	8872	8923	8975	9026		
9077	9128	9179	9230	9282	9333	9384	9435	9486	9537		
9588	9640	9691	9742	9793	9844	9895	9946	9998	0̄049		
0290100	0151	0202	0253	0304	0356	0407	0458	0509	0560		51
0611	0662	0714	0765	0816	0867	0918	0969	1020	1071		1 5
1123	1174	1225	1276	1327	1378	1429	1480	1532	1583		2 10 3 15
1634	1685	1736	1787	1838	1889	1941	1992	2043	2094		4 20
2145	2196	2247	2298	2350	2401	2452	2503	2554	2605		5 26
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3167	3218	3269	3321	3372	3423	3474	3525	3576	3627		7 36 8 41
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01	4700	4751	4802	4853	4905	4956	5007	5058	5109	5160	
02	5211	5262	5313	5364	5415	5466	5517	5568	5620	5671	
03	5722	5773	5824	5875	5926	5977	6028	6079	6130	6181	
04	6233	6284	6335	6386	6437	6488	6539	6590	6641	6692	
05	6743	6794	6845	6896	6947	6998	7050	7101	7152	7203	
06	7254	7305	7356	7407	7458	7509	7560	7611	7662	7713	
07	7764	7815	7866	7917	7969	8020	8071	8122	8173	8224	
08	8275	8326	8377	8428	8479	8530	8581	8632	8683	8734	
09	8785	8836	8887	8938	8989	9040	9091	9142	9194	9245	
8510	9296	9347	9398	9449	9500	9551	9602	9653	9704	9755	
11	9806	9857	9908	9959	$\overline{0}010$	0061	0112	0163	0214	0265	
12	9300316	0367	0418	0469	0520	0571	0622	0673	0724	0775	
13	0826	0877	0928	0979	1030	1081	1132	1183	1234	1285	
14	1336	1387	1438	1489	1540	1591	1643	1694	1745	1796	51
15	1847	1898	1949	2000	2051	2102	2153	2204	2255	[illegible]	
16	2357	2408	2459	2510	2561	2612	2663	2713	2764	2815	
17	2866	2917	2968	3019	3070	3121	3172	3223	3274	3325	
18	3376	3427	3478	3529	3580	3631	3682	3733	3784	3835	
19	3886	3937	3988	4039	4090	4141	4192	4243	4294	4345	
8520	4396	4447	4498	4549	4600	4651	4702	4753	4804	4855	
21	4906	4957	5008	5059	5110	5160	5211	5262	5313	5364	
22	5415	5466	5517	5568	5619	5670	5721	5772	5823	5874	
23	5925	5976	6027	6078	6129	6180	6231	6282	6333	6383	
24	6434	6485	6536	6587	6638	6689	6740	6791	6842	6893	
25	6944	6995	7046	7097	7148	7199	7250	7300	7351	7402	
26	7453	7504	7555	7606	7657	7708	7759	7810	7861	7912	
27	7963	8014	8064	8115	8166	8217	8268	8319	8370	8421	
28	8472	8523	8574	8625	8676	8727	8777	8828	8879	8930	
29	8981	9032	9083	9134	9185	9236	9287	9338	9388	9439	
8530	9490	9541	9592	9643	9694	9745	9796	9847	[illegible]	[illegible]	
31	9999	$\overline{0}050$	0101	0152	0203	0254	0305	0356	0407	0458	
32	9310508	0559	0610	0661	0712	0763	0814	0865	0916	0967	
33	1017	1068	1119	1170	1221	1272	1323	1374	1425	1475	
34	1526	1577	1628	1679	1730	1781	1832	1883	1933	1984	
35	2035	2086	2137	2188	2239	2290	2341	2391	2442	2493	
36	2544	2595	2646	2697	2748	2798	2849	2900	2951	3002	
37	3053	3104	3155	3205	3256	3307	3358	3409	3460	3511	
38	3562	3612	3663	3714	3765	3816	3867	3918	3968	4019	
39	4070	4121	4172	4223	4274	4324	4375	4426	4477	4528	
8540	4579	4630	4680	4731	4782	4833	4884	4935	4986	5036	
41	5087	5138	5189	5240	5291	5341	5392	5443	5494	5545	
42	5596	5647	5697	5748	5799	5850	5901	5952	6002	6053	
43	6104	6155	6206	6257	6307	6358	6409	6460	6511	6562	
44	6612	6663	6714	6765	6816	6867	6917	6968	7019	7070	
45	7121	7171	7222	7273	7324	7375	7426	7476	7527	7578	
46	7629	7680	7731	7781	7832	7883	7934	[illegible]	8035	8086	
47	8137	8188	8239	8289	8340	8391	8442	8493	8544	8594	
48	8645	8696	8747	8798	8848	8899	8950	9001	9052	9102	
49	9153	9204	9255	9306	9356	9407	9458	9509	9560	9610	
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0677	0728	0778	0829	0880	0931	0982	1032	1083	1134		1 5
1185	1235	1286	1337	1388	1439	1489	1540	1591	1642		2 10
1692	1743	1794	1845	1896	1946	1997	2048	2099	2149		3 15 4 20
2200	2251	2302	2352	2403	2454	2505	2555	2606	2657		5 26
2708	2759	2809	2860	2911	2962	3012	3063	3114	3165		6 31
3215	3266	3317	3368	3418	3469	3520	3571	3621	3672		7 36
3723	3774	3824	3875	3926	3977	4027	4078	4129	4180		8 41 9 46
4230	4281	4332	4382	4433	4484	4535	4585	4636	4687		
4738	4788	4839	4890	4941	4991	5042	5093	5144	5194		
5245	5296	5346	5397	5448	5499	5549	5600	5651	5702		
5752	5803	5854	5904	5955	6006	6057	6107	6158	6209		
6259	6310	6361	6412	6462	6513	6564	6614	6665	6716		
6767	6817	6868	6919	6969	7020	7071	7122	7172	7223		
7274	7324	7375	7426	7476	7527	7578	7629	7679	7730		
7781	7831	7882	7933	7983	8034	8085	8136	8186	8237		
8288	8338	8389	8440	8490	8541	8592	8643	8693	8744		
8795	8845	8896	8947	8997	9048	9099	9149	9200	9251		
9301	9352	9403	9453	9504	9555	9606	9656	9707	9758		
9808	9859	9910	9960	0011	0062	0112	0163	0214	0264		
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1328	1379	1430	1480	1531	1582	1632	1683	1733	1784		
1835	1885	1936	1987	2037	2088	2139	2189	2240	2291		
2341	2392	2443	2493	2544	2595	2645	2696	2746	2797		
2848	2898	2949	3000	3050	3101	3152	3202	3253	3303		
3354	3405	3455	3506	3557	3607	3658	3709	3759	3810		
3860	3911	3962	4012	4063	4114	4164	4215	4265	4316		
4367	4417	4468	4519	4569	4620	4670	4721	4772	4822		
4873	4923	4974	5025	5075	5126	5177	5227	5278	5328		
5379	5430	5480	5531	5581	5632	5683	5733	5784	5834		
5885	5936	5986	6037	6088	6138	6189	6239	6290	6341		
6391	6442	6492	6543	6594	6644	6695	6745	6796	6846		
6897	6948	6998	7049	7099	7150	7201	7251	7302	7352		
7403	7454	7504	7555	7605	7656	7707	7757	7808	7858		
7909	7959	8010	8061	8111	8162	8212	8263	8313	8364		
8415	8465	8516	8566	8617	8668	8718	8769	8819	8870		
8920	8971	9021	9072	9123	9173	9224	9274	9325	9375		
9426	9477	9527	9578	9628	9679	9729	9780	9831	9881		
9932	9982	0033	0083	0134	0184	0235	0286	0336	0387		
9340437	0488	0538	0589	0639	0690	0740	0791	0842	0892		
0943	0993	1044	1094	1145	1195	1246	1296	1347	1398		50
1448	1499	1549	1600	1650	1701	1751	1802	1852	1903		1 5
1953	2004	2055	2105	2156	2206	2257	2307	2358	2408		2 10 3 15
2459	2509	2560	2610	2661	2711	2762	2812	2863	2914		4 20
2964	3015	3065	3116	3166	3217	3267	3318	3368	3419		5 25
3469	3520	3570	3621	3671	3722	3772	3823	3873	3924		6 30 7 35
3974	4025	4075	4126	4176	4227	4277	4328	4378	4429		8 40
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02	5211	5262	5313	5364	5415	5466	5517	5569	5620	5671	
03	5722	5773	5824	5875	5926	5977	6028	6079	6130	6181	
04	6233	6284	6335	6386	6437	6488	6539	6590	6641	6692	
05	6743	6794	6845	6896	6947	6998	7050	7101	7152	7203	
06	7254	7305	7356	7407	7458	7509	7560	7611	7662	7713	
07	7764	7815	7866	7917	7969	8020	8071	8122	8173	8224	
08	8275	8326	8377	8428	8479	8530	8581	8632	8683	8734	
09	8785	8836	8887	8938	8989	9040	9091	9142	9194	9245	
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11	9806	9857	9908	9959	0010	0061	0112	0163	0214	0265	
12	9300316	0367	0418	0469	0520	0571	0622	0673	0724	0775	
13	0826	0877	0928	0979	1030	1081	1132	1183	1234	1285	
14	1336	1387	1438	1489	1540	1591	1643	1694	1745	1796	51
15	1847	1898	1949	2000	2051	2102	2153	2204	2255	2306	
16	2357	2408	2459	2510	2561	2612	2663	2713	2764	2815	
17	2866	2917	2968	3019	3070	3121	3172	3223	3274	3325	
18	3376	3427	3478	3529	3580	3631	3682	3733	3784	3835	
19	3886	3937	3988	4039	4090	4141	4192	4243	4294	4345	
8520	4396	4447	4498	4549	4600	4651	4702	4753	4804	4855	
21	4906	4957	5008	5059	5110	5160	5211	5262	5313	5364	
22	5415	5466	5517	5568	5619	5670	5721	5772	5823	5874	
23	5925	5976	6027	6078	6129	6180	6231	6282	6333	6383	
24	6434	6485	6536	6587	6638	6689	6740	6791	6842	6893	
25	6944	6995	7046	7097	7148	7199	7250	7300	7351	7402	
26	7453	7504	7555	7606	7657	7708	7759	7810	7861	7912	
27	7963	8014	8064	8115	8166	8217	8268	8319	8370	8421	
28	8472	8523	8574	8625	8676	8727	8777	8828	8879	8930	
29	8981	9032	9083	9134	9185	9236	9287	9338	9388	9439	
8530	9490	9541	9592	9643	9694	9745	9796	9847	9898	9949	
31	9999	0050	0101	0152	0203	0254	0305	0356	0407	0458	
32	9310508	0559	0610	0661	0712	0763	0814	0865	0916	0967	
33	1017	1068	1119	1170	1221	1272	1323	1374	1425	1475	
34	1526	1577	1628	1679	1730	1781	1832	1883	1933	1984	
35	2035	2086	2137	2188	2239	2290	2341	2391	2442	2493	
36	2544	2595	2646	2697	2748	2798	2849	2900	2951	3002	
37	3053	3104	3155	3205	3256	3307	3358	3409	3460	3511	
38	3562	3612	3663	3714	3765	3816	3867	3918	3968	4019	
39	4070	4121	4172	4223	4274	4324	4375	4426	4477	4528	
8540	4579	4630	4680	4731	4782	4853	4884	4935	4986	5036	
41	5087	5138	5189	5240	5291	5341	5392	5443	5494	5545	
42	5596	5647	5697	5748	5799	5850	5901	5952	6002	6053	
43	6104	6155	6206	6257	6307	6358	6409	6460	6511	6562	
44	6612	6663	6714	6765	6816	6867	6917	6968	7019	7070	
45	7121	7171	7222	7273	7324	7375	7426	7476	7527	7578	
46	7629	7680	7731	7781	7832	7883	7934	7985	8035	8086	
47	8137	8188	8239	8289	8340	8391	8442	8493	8544	8594	
48	8645	8696	8747	8798	8848	8899	8950	9001	9052	9102	
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5380	5430	5480	5530	5580	5630		9 45
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34	6934	6984	7034	7084	7134		
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	7936	7986	8037	8087	8137		
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		9991	0041	0091	0141		
		0492	0542	0592	0642		
		992	1042	1093	1143		
	43	1493	1543	1593	1643		
	1944	1994	2044	2094	2144		
2394	2445	2495	2545	2595	2645		
2895	2945	2995	3045	3095	3145		
3396	3446	3496	3546	3596	3646		
3896	3946	3996	4046	4096	4146		
4397	4447	4497	4547	4597	4647		
4897	4947	4997	5047	5097	5147		
5397	5447	5497	5547	5598	5648		
5898	5948	5998	6048	6098	6148		
6398	6448	6498	6548	6598	6648		
6898	6948	6998	7048	7098	7148		
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8898	8948	8998	9048	9098	9148		
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1897	1947	1997	2046	2096	2146		1 5
2396	2446	2496	2546	2596	2646		2 10
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3894	3944	3994	4044	4094	4144		6 29
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02	5994	6045	6095	6146	6196	6247	6297	6348	6398	6449	
03	6499	6550	6600	6651	6701	6752	6802	6853	6903	6954	
04	7004	7054	7105	7155	7206	7256	7307	7357	7408	7458	
05	7509	7559	7610	7660	7711	7761	7812	7862	7912	7963	
06	8013	8064	8114	8165	8215	8266	8316	8367	8417	8468	
07	8518	8568	8619	8669	8720	8770	8821	8871	8922	8972	
08	9023	9073	9123	9174	9224	9275	9325	9376	9426	9477	
09	9527	9578	9628	9678	9729	9779	9830	9880	9931	9981	
8610	9350032	0082	0132	0183	0233	0284	0334	0385	0435	[illegible]	
11	0536	0586	0637	0687	0738	0788	0838	0889	0939	0990	
12	1040	1091	1141	1191	1242	1292	1343	1393	1444	1494	
13	1544	1595	1645	1696	1746	1797	1847	1897	1948	1998	
14	2049	2099	2150	2200	2250	2301	2351	2402	2452	2502	
15	2553	2603	2654	2704	2754	2805	2855	2906	2956	3006	
16	3057	3107	3158	3208	3259	3309	3359	3410	3460	3511	
17	3561	3611	3662	3712	3763	3813	3863	3914	3964	4015	
18	4065	4115	4166	4216	4266	4317	4367	4418	4468	4518	
19	4569	4619	4670	4720	4770	4821	4871	4922	4972	5022	
8620	5073	5123	5173	5224	5274	5325	5375	5425	5476	5526	
21	5576	5627	5677	5728	5778	5828	5879	5929	5979	6030	
22	6080	6131	6181	6231	6282	6332	6382	6433	6483	6533	
23	6584	6634	6685	6735	6785	6836	6886	6936	6987	7037	
24	7087	7138	7188	7239	7289	7339	7390	7440	7490	7541	
25	7591	7641	7692	7742	7792	7843	7893	7943	7994	8044	
26	8095	8145	8195	8246	8296	8346	8397	8447	8497	8548	
27	8598	8648	8699	8749	8799	8850	8900	8950	9001	9051	
28	9101	9152	9202	9252	9303	9353	9403	9454	9504	9554	
29	9605	9655	9705	9756	9806	9856	9907	9957	$\bar{0}007$	0058	
8630	9360108	0158	0209	0259	0309	[illegible]	0410	0460	0511	0561	
31	0611	0661	0712	0762	0812	0863	0913	0963	1014	1064	
32	1114	1165	1215	1265	1316	1366	1416	1466	1517	1567	
33	1617	1668	1718	1768	1819	1869	1919	1970	2020	2070	
34	2120	2171	2221	2271	2322	2372	2422	2473	2523	2573	
35	2623	2674	2724	2774	2825	2875	2925	2975	3026	[illegible]	
36	3126	3177	3227	3277	3327	3378	[illegible]	3478	3529	3579	
37	3629	3679	3730	3780	3830	3881	3931	3981	4031	4082	
38	4132	4182	4233	4283	4333	4383	4434	4484	4534	4584	
39	4635	4685	4735	4786	4836	4886	[illegible]	4987	5037	5087	
8640	5137	5188	5238	5288	5338	5389	5439	5489	5540	5590	
41	5640	5690	5741	5791	5841	5891	5942	5992	6042	6092	
42	6143	6193	6243	6293	6344	6394	6444	6494	6545	6595	
43	6645	6695	6746	6796	6846	6896	6947	6997	7047	7097	
44	7148	7198	[illegible]	7298	7349	7399	7449	7499	7550	7600	
45	7650	7700	7750	7801	7851	7901	7951	8002	8052	[illegible]	
[illegible]	8152	8203	8253	8303	8353	8403	8454	8504	8554	8604	
47	8655	8705	8755	8805	8855	8906	8956	9006	9056	9107	
48	9157	9207	9257	9307	9358	9408	9458	9508	9559	9609	
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1667	1717	1767	1818	1868	1918	1968	2018	2069	2119	
2169	2219	2269	2319	2370	2420	2470	2520	2570	2621	
2671	2721	2771	2821	2871	2922	2972	3022	3072	3122	
3172	3223	3273	3323	3373	3423	3474	3524	3574	3624	
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4176	4226	4276	4326	4376	4427	4477	4527	4577	4627	
4677	4728	4778	4828	4878	4928	4978	5028	5079	5129	
5179	5229	5279	5329	5380	5430	5480	5530	5580	5630	
5680	5731	5781	5831	5881	5931	5981	6031	6082	6132	
6182	6232	6282	6332	6382	6432	6483	6533	6583	6633	
6683	6733	6783	6834	6884	6934	6984	7034	7084	7134	
7184	7235	7285	7335	7385	7435	7465	7535	7585	7636	
7686	7736	7786	7836	7886	[illegible]	7986	8037	8087	8137	
8187	8237	8287	8337	8387	8437	8488	8538	8588	8638	
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9189	9239	9289	9339	9389	9440	9490	9540	9590	9640	
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380191	0241	0291	0341	0391	0441	0492	0542	0592	[illegible]	
0692	0742	0792	0842	0892	0942	0992	1042	1093	1143	
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2194	2244	2294	2344	2394	2445	2495	2545	2595	[illegible]	
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3195	3245	3296	3346	3396	3446	3496	3546	3596	[illegible]	
3696	3746	3796	3846	3896	3946	3996	4046	4096	4146	
4196	4247	4297	4347	4397	4447	4497	4547	4597	4647	
4697	4747	4797	[illegible]	4897	4947	4997	5047	5097	5147	
5197	5247	5297	5347	5397	5447	5497	5547	5598	5648	
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6198	6248	6298	6348	6398	6448	[illegible]	6548	6598	[illegible]	
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7198	7248	7298	7348	7398	7448	7498	7548	7598	7648	50
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8198	8248	8298	8348	8398	8448	[illegible]	8548	8598	[illegible]	
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9198	[illegible]	9298	9348	9398	9448	9498	9548	9598	9648	
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0697	0747	0797	0847	0897	[illegible]	0997	1047	1097	1147	
1197	1247	1297	1347	1397	1447	1497	1547	1597	1647	
1697	1747	1797	1847	1897	1947	1997	2046	2096	2146	
2196	2246	2296	2346	[illegible]	2446	2496	2546	2596	2646	
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3695	3745	3795	3845	3894	3944	[illegible]	4044	4094	4144	
4194	4244	4294	4344	4394	4444	4494	4544	4593	4643	
4693	4743	4793	4843	4893	4943	[illegible]	5043	5093	5143	
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Pts.	[illegible]
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01	5692	5742	[illegible]	5841	5891	5941	5991	6041	6091	6141		
02	6191	6241	6291	6341	6390	6440	6490	6540	6590	6640		
03	6690	6740	6790	6840	6889	6939	6989	7039	7089	7139		
04	7189	7239	7289	7339	7388	7438	7488	7538	7588	7638		
05	7688	7738	7788	7837	7887	7937	7987	8037	8087	8137		
06	8187	8237	8286	8336	8386	8436	8486	8536	8586	8636		
07	8685	8735	8785	8835	8885	8935	8985	9035	9084	9134		
08	9184	9234	9284	[illegible]	9384	9434	9483	9533	9583	9633		
09	9683	9733	9783	9833	9882	[illegible]	9982	$\overline{0}032$	0082	[illegible]		
8710	9400182	0231	0281	0331	0381	0431	0481	0531	0580	0630		
11	0680	0730	0780	0830	0880	0929	0979	1029	1079	1129		
12	1179	1229	1278	1328	1378	1428	1478	1528	1577	1627		
13	1677	1727	1777	1827	1877	1926	1976	2026	2076	2126		
14	2176	2225	2275	2325	2375	2425	2475	2524	2574	2624		
15	2674	2724	2774	2823	2873	2923	2973	3023	3073	3122		
16	3172	3222	3272	3322	3372	3421	3471	3521	3571	3621		
17	3670	3720	3770	3820	3870	3920	3969	4019	4069	4119		
18	4169	4218	4268	4318	[illegible]	4418	4468	4517	4567	4617		
19	4667	4717	4766	4816	4866	4916	4966	5015	5065	5115		
8720	5165	5215	5264	5314	5364	5414	5464	5513	5563	5613		
21	5663	5713	5762	5812	5862	5912	5962	6011	6061	6111		
22	6161	6211	6260	6310	6360	6410	6460	6509	6559	6609		
23	6659	6709	6758	[illegible]	6858	6908	6957	7007	7057	7107		
24	7157	7206	7256	7306	7356	7405	7455	7505	7555	7605		
25	7654	7704	7754	7804	7853	7903	7953	8003	8053	8102		
26	8152	8202	8252	8301	8351	8401	8451	8500	8550	8600		
27	8650	8700	8749	8799	8849	8899	8948	8998	9048	9098		
[illegible]	9147	9197	9247	9297	9346	9396	9446	9496	9545	9595		
29	9645	9695	9744	9794	9844	9894	9943	9993	$\overline{0}043$	0093		
8730	9410142	0192	0242	0292	0341	0391	0441	0491	0540	0590		
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32	1137	1187	1237	1286	1336	1386	1436	1485	1535	1585		
33	1635	1684	1734	1784	1834	1883	1933	1983	2032	2082		
34	2132	2182	2231	2281	2331	2380	2430	2480	2530	2579		
35	2629	2679	2729	2778	2828	2878	2927	2977	3027	3077		
36	3126	3176	3226	3275	3325	3375	3425	3474	3524	3574		
37	3623	3673	3723	3772	3822	3872	3922	3971	4021	4071		
38	4120	4170	4220	4270	4319	4369	4419	4468	4518	4568		
39	4617	4667	4717	4766	4816	4866	4916	4965	5015	5065		
8740	5114	5164	5214	5263	5313	5363	5412	5462	5512	5562		
41	5611	5661	5711	5760	5810	5860	5909	5959	6009	6058		
42	6108	6158	6207	6257	6307	6356	6406	6456	6505	6555		
43	6605	6654	6704	6754	6803	6853	6903	6952	7002	7052		
44	7101	7151	7201	7250	7300	7350	7399	7449	7499	7548		
45	7598	7648	7697	7747	7797	7846	7896	7946	[illegible]	8045		
46	8095	8144	8194	8244	8293	8343	8393	8442	8492	8542		
47	8591	8641	8691	8740	8790	8840	8889	8939	[illegible]	9038		
48	9088	9137	9187	9237	9286	9336	9386	9435	[illegible]	9535		
49	9584	9634	9683	9733	9783	9832	9882	9932	9981	$\overline{0}031$		
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1073	1123	1172	1222	1272	1321	1371	1420	1470	1520		1 | 5
1569	1619	1669	1718	1768	1817	1867	1917	1966	2016		2 | 10
2065	2115	2165	2214	2264	2313	2363	2413	2462	2512		3 | 15 4 | 20
2562	2611	2661	2710	2760	2810	2859	2909	2958	3008		5 | 25
3058	3107	3157	3206	3256	3306	3355	3405	3454	3504		6 | 30
3553	3603	3653	3702	3752	3801	3851	3901	3950	4000		7 | 35 8 | 40
4049	4099	4149	4198	4248	4297	4347	4397	4446	4496		9 | 45
4545	4595	4644	4694	4744	4793	4843	4892	4942	4991		
5041	5091	5140	5190	5239	5289	5339	5388	5438	5487		
5537	5586	5636	5686	5735	5785	5834	5884	5933	5983		
6032	6082	6132	6181	6231	6280	6330	6379	6429	6479		
6528	6578	6627	6677	6726	6776	6825	6875	6925	6974		
7024	7073	7123	7172	7222	7271	7321	7371	7420	7470		
7519	7569	7618	7668	7717	7767	7816	7866	7916	7965		
8015	8064	8114	8163	8213	8262	8312	8361	8411	8461		
8510	8560	8609	8659	8708	8758	8807	8857	8906	8956		
9005	9055	9104	9154	9204	9253	9303	9352	9402	9451		
9501	9550	9600	9649	9699	9748	9798	9847	9897	9946		
9996	$\overline{0}045$	0095	0144	0194	0244	0293	0343	0392	0442		
9430491	0541	0590	0640	0689	0739	0788	0838	0887	0937		
0986	1036	1085	1135	1184	1234	1283	1333	1382	1432		
1481	1531	1580	1630	1679	1729	1778	1828	1877	1927		
1976	2026	2075	2125	2174	2224	2273	2323	2372	2422		
2471	2521	2570	2620	2669	2719	2768	2818	2867	2917		
2966	3016	3065	3115	3164	3214	3263	3313	3362	3412		
3461	3510	3560	3609	3659	3708	3758	3807	3857	3906		
3956	4005	4055	4104	4154	4203	4253	4302	4352	4401		
4450	4500	4549	4599	4648	4698	4747	4797	4846	4896		
4945	4995	5044	5094	5143	5192	5242	5291	5341	5390		
5440	5489	5539	5588	5638	5687	5737	5786	5835	5885		
5934	5984	6033	6083	6132	6182	6231	6280	6330	6379		
6429	6478	6528	6577	6627	6676	6726	6775	6824	6874		
6923	6973	7022	7072	7121	7170	7220	7269	7319	7368		
7418	7467	7517	7566	7615	7665	7714	7764	7813	7863		
7912	7961	8011	8060	8110	8159	8209	8258	8307	8357		
8406	8456	8505	8555	8604	8653	8703	8752	8802	8851		
8900	8950	8999	9049	9098	9148	9197	9246	9296	9345		
9395	9444	9493	9543	9592	9642	9691	9741	9790	9839		
9889	9938	9988	$\overline{0}037$	0086	0136	0185	0235	0284	0333		
9440383	0432	0482	0531	0580	0630	0679	0729	0778	0827		
0877	0926	0976	1025	1074	1124	1173	1223	1272	1321		49
1371	1420	1470	1519	1568	1618	1667	1716	1766	1815		1 | 5
1865	1914	1963	2013	2062	2112	2161	2210	2260	2309		2 | 10 3 | 15
2358	2408	2457	2507	2556	2605	2655	2704	2753	2803		4 | 20
2852	2902	2951	3000	3050	3099	3148	3198	3247	3297		5 | 25
3346	3395	3445	3494	3543	3593	3642	3691	3741	3790		6 | 29 7 | 34
3840	3889	3938	3988	4037	4086	4136	4185	4234	4284		8 | 39
4333	4383	4432	4481	4531	4580	4629	4679	4728	4777		9 | 44
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8800	9444827	4876	4925	4975	5024	5073	5123	5172	5222	5271		
01	5320	5370	5419	5468	5518	5567	5616	[illegible]	5715	5764		50
02	5814	3863	5912	5962	6011	6060	6110	6159	6208	6258		1 5
03	6307	6356	6406	6455	6504	6554	6603	6652	6702	6751		2 10
04	6800	6850	6899	6948	6998	7047	7096	7146	7195	7244		3 15
05	7294	7343	7392	7442	7491	7540	7590	7639	[illegible]	7737		4 20
06	7787	7836	7885	7935	7984	[illegible]	[illegible]	8132	8181	8231		5 25
07	8280	8329	8379	[illegible]	8477	8527	8576	8625	8674	8724		6 30
08	8773	8822	8872	8921	8970	[illegible]	9069	9118	9167	9217		7 35
09	9266	9315	9365	9414	9463	9513	9562	9611	9660	9710		8 40
8810	9759	9808	9858	9907	9956	0̄006	0055	0104	0153	0203		9 45
11	9450252	0301	0351	0400	0449	0498	0548	0597	0646	0696		
12	0745	0794	0843	0893	0942	0991	1041	1090	1139	1188		
13	1238	1287	1336	1386	1435	1484	1533	1583	1632	1681		
14	1730	1780	1829	1878	1928	1977	2026	2075	2125	2174		
15	2223	2272	2322	2371	2420	2469	2519	2568	2617	2667		
16	2716	2765	2814	2864	2913	2962	3011	3061	3110	3159		
17	3208	3258	3307	3356	3405	3455	3504	3553	3602	3652		
18	3701	3750	3799	3849	3898	3947	3996	4046	4095	4144		
19	4193	4243	4292	4341	4390	4440	4489	4538	4587	4637		
8820	4686	4735	4784	4834	4883	[illegible]	[illegible]	5031	5080	5129		
21	5178	5227	5277	5326	5375	5424	5474	5523	5572	5621		
[illegible]	5671	5720	5769	5818	5867	5917	5966	6015	6064	6114		
23	6163	6212	6261	6310	6360	6409	6458	6507	6557	6606		
24	6655	6704	6753	6803	6852	6901	6950	7000	7049	7098		
25	7147	7196	7246	7295	7344	7393	7442	7492	7541	7590		
26	7639	7688	7738	7787	7836	7885	7934	7984	8033	8082		
27	8131	8180	8230	8279	8328	8377	8426	8476	8525	8574		
28	8623	8672	8722	8771	8820	8869	8918	8968	9017	9066		
29	9115	9164	9214	9263	9312	9361	9410	9459	9509	9558		
8830	9607	9656	9705	9755	9804	9853	9902	9951	0̄000	0050		
31	9460099	[illegible]	0197	0246	0296	0345	0394	0443	[illegible]	0541		
32	0591	0640	0689	0738	0787	0836	0886	0935	0984	1033		
33	1082	1131	1181	1230	1279	1328	1377	1426	1476	1525		
34	1574	1623	1672	1721	1771	1820	1869	1918	1967	2016		
35	2066	2115	2164	2213	2262	2311	2360	2410	2459	[illegible]		
36	2557	2606	2655	2705	2754	[illegible]	[illegible]	2901	2950	2999		
37	3049	3098	3147	3196	3245	3294	3343	3393	3442	3491		
38	3540	3589	3638	3687	3737	3786	3835	3884	3933	3982		
39	4031	4080	4130	4179	4228	4277	[illegible]	4375	4424	4474		
8840	4523	4572	4621	4670	4719	4768	4817	4867	4916	4965		
41	5014	5063	5112	5161	5210	5260	5309	5358	[illegible]	5456		
42	5505	5554	5603	5652	5702	5751	5800	[illegible]	5898	5947		
43	5996	6045	6094	6144	6193	6242	6291	6340	6389	6438		
44	6487	6536	6586	6635	6684	6733	6782	6831	6880	6929		
45	6978	7027	7077	7126	7175	7224	7273	7322	7371	7420		
46	7469	7518	7568	7617	7666	7715	7764	7813	7862	7911		
47	7960	8009	8058	8103	8157	8203	8255	8304	8353	8402		
48	8451	8500	8549	8598	8647	8697	8746	8795	8844	8893		
49	8942	8991	9040	9089	9138	9187	9236	9285	9335	9384		
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9470414	0463	0512	0561	0610	0659	0708	0757	0807	0856		1 5
0905	0954	1003	1052	1101	1150	1199	1248	1297	1346		2 10
1395	1444	1493	1542	1591	1640	1689	1739	1788	1837		3 15 4 20
1886	1935	1984	2033	2082	2131	2180	2229	2278	2327		5 25
2376	2425	2474	2523	2572	2621	2670	2719	2768	2817		6 29
2866	2915	2965	3014	3063	3112	3161	3210	3259	3308		7 34
3357	3406	3455	3504	3553	3602	3651	3700	3749	3798		8 39
3847	3896	3945	3994	4043	4092	4141	4190	4239	4288		9 44
4337	4386	4435	4484	4533	4582	4631	4680	4729	4778		
4827	4876	4925	4974	5023	5072	5121	5170	5219	5268		
5317	5366	5415	5464	5513	5562	5611	5660	5709	5758		
5807	5856	5905	5954	6003	6052	6101	6150	6199	6248	49	
6297	6346	6395	6444	6493	6542	6591	6640	6689	6738		
6787	6836	6885	6934	6983	7032	7081	7130	7179	7228		
7277	7326	7375	7424	7473	7522	7571	7620	7669	7718		
7767	7816	7865	7914	7963	8012	8061	8110	8159	8208		
8257	8306	8355	8404	8453	8502	8551	8600	8649	8698		
8747	8796	8844	8893	8942	8991	9040	9089	9138	9187		
9236	9285	9334	9383	9432	9481	9530	9579	9628	9677		
9726	9775	9824	9873	9922	9971	0̄020	0068	0117	0166		
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0705	0754	0803	0852	0901	0950	0998	1047	1096	1145		
1194	1243	1292	1341	1390	1439	1488	1537	1586	1635		
1684	1733	1781	1830	1879	1928	1977	2026	2075	2124		
2173	2222	2271	2320	2369	2418	2467	2515	2564	2613		
2662	2711	2760	2809	2858	2907	2956	3005	3054	3102		
3151	3200	3249	3298	3347	3396	3445	3494	3543	3592		
3641	3689	3738	3787	3836	3885	3934	3983	4032	4081		
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4619	4668	4717	4765	4814	4863	4912	4961	5010	5059		
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6574	6623	6672	6721	6770	6819	6868	6916	6965	7014		
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7552	7601	7650	7698	7747	7796	7845	7894	7943	7992		
8040	8089	8138	8187	8236	8285	8334	8382	8431	8480		
8529	8578	8627	8676	8724	8773	8822	8871	8920	8969		
9018	9066	9115	9164	9213	9262	9311	9360	9408	9457		
9506	9555	9604	9653	9701	9750	9799	9848	9897	9946		
9995	0̄043	0092	0141	0190	0239	0288	0336	0385	0434		48
9490483	0532	0581	0629	0678	0727	0776	0825	0874	0922		1 5
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1948	1997	2045	2094	2143	2192	2241	2289	2338	2387		4 19
2436	2485	2534	2582	2631	2680	2729	2778	2826	2875		5 24
2924	2973	3022	3070	3119	3168	3217	3266	3314	3363		6 29 7 34
3412	3461	3510	3558	3607	3656	3705	3754	3802	3851		8 38 9 43
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01	4388	4437	4486	4534	4583	4632	4681	4730	4778	4827		49
02	4876	4925	4973	5022	5071	5120	5169	5217	5266	5315		1 5
03	5364	5413	5461	5510	5559	5608	5656	5705	5754	5803		2 10
04	5852	5900	5949	5998	6047	6095	6144	6193	6242	6290		3 15
05	6339	6388	6437	6486	6534	6583	6632	6681	6729	6778		4 20
06	6827	6876	6924	6973	7022	7071	7119	7168	7217	7266		5 25
07	7315	7363	7412	7461	7510	7558	7607	7656	7705	7753		6 29
08	7802	7851	7900	7948	7997	8046	8095	8143	8192	8241		7 34
09	8290	8338	8387	8436	8485	8533	8582	8631	8680	8728		8 39
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8910	8777	8826	8875	8923	8972	9021	9069	9118	9167	9216		
11	9264	9313	9362	9411	9459	9508	9557	9606	9654	9703		
12	9752	9801	9849	9898	9947	9995	0044	0093	0142	0190		
13	9500239	0288	0337	0385	0434	0483	0531	0580	0629	0678		
14	0726	0775	0824	0872	0921	0970	1019	1067	1116	1165		
15	1213	1262	1311	1360	1408	1457	1506	1554	1603	1652		
16	1701	1749	1798	1847	1895	1944	1993	2042	2090	2139		
17	2188	2236	2285	2334	2382	2431	2480	2529	2577	2626		
18	2675	2723	2772	2821	2869	2918	2967	3016	3064	3113		
19	3162	3210	3259	3308	3356	3405	3454	3502	3551	3600		
8920	3649	3697	3746	3795	3843	3892	3941	3989	4038	4087		
21	4135	4184	4233	4281	4330	4379	4427	4476	4525	4574		
22	4622	4671	4720	4768	4817	4866	4914	4963	5012	5060		
23	5109	5158	5206	5255	5304	5352	5401	5450	5498	5547		
24	5596	5644	5693	5742	5790	5839	5888	5936	5985	6034		
25	6082	6131	6180	6228	6277	6326	6374	6423	6472	6520		
26	6569	6617	6666	6715	6763	6812	6861	6909	6958	7007		
27	7055	7104	7153	7201	7250	7299	7347	7396	7445	7493		
28	7542	7590	7639	7688	7736	7785	7834	7882	7931	7980		
29	8028	8077	8126	8174	8223	8271	8320	8369	8417	8466		
8930	8515	8563	8612	8660	8709	8758	8806	8855	8904	8952		
31	9001	9050	9098	9147	9195	9244	9293	9341	9390	9439		
32	9487	9536	9584	9633	9682	9730	9779	9827	9876	9925		
33	9973	0022	0071	0119	0168	0216	0265	0314	0362	0411		
34	9510459	0508	0557	0605	0654	0703	0751	0800	0848	0897		
35	0946	0994	1043	1091	1140	1189	1237	1286	1334	1383		
36	1432	1480	1529	1577	1626	1675	1723	1772	1820	1869		
37	1918	1966	2015	2063	2112	2161	2209	2258	2306	2355		
38	2404	2452	2501	2549	2598	2646	2695	2744	2792	2841		
39	2889	2938	2987	3035	3084	3132	3181	3229	3278	3327		
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41	3861	3910	3958	4007	4055	4104	4152	4201	4250	4298		
42	4347	4395	4444	4492	4541	4589	4638	4687	4735	4784		48
43	4832	4881	4929	4978	5027	5075	5124	5172	5221	5269		1 5
44	5318	5366	5415	5464	5512	5561	5609	5658	5706	5755		2 10
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45	5803	5852	5901	5949	5998	6046	6095	6143	6192	6240		4 19
46	6289	6337	6386	6435	6483	6532	6580	6629	6677	6726		5 24
47	6774	6823	6871	6920	6969	7017	7066	7114	7163	7211		6 29
48	7260	7308	7357	7405	7454	7502	7551	7599	7648	7697		7 34 8 38
49	7745	7794	7842	7891	7939	7988	8036	8085	8133	8182		9 43
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0656	0704	0753	0801	0850	0898	0947	0995	1044	1092		4 20 5 25
1141	1189	1238	1286	1335	1383	1432	1480	1529	1577		6 29
1626	1674	1723	1771	1820	1868	1917	1965	2014	2062		7 34
2111	2159	2208	2256	2305	2353	2401	2450	2498	2547		8 39
2595	2644	2692	2741	2789	2838	2886	2935	2983	3032		9 44
3080	3129	3177	3226	3274	3322	3371	3419	3468	3516		
3565	3613	3662	3710	3759	3807	3856	3904	3952	4001		
4049	4098	4146	4195	4243	4292	4340	4389	4437	4486		
4534	4582	4631	4679	4728	4776	4825	4873	4922	4970		
5018	5067	5115	5164	5212	5261	5309	5358	5406	5454		
5503	5551	5600	5648	5697	5745	5794	5842	5890	5939		
5987	6036	6084	6133	6181	6230	6278	6326	6375	6423		
6472	6520	6569	6617	6665	6714	6762	6811	6859	6908		
6956	7004	7053	7101	7150	7198	7247	7295	7343	7392		
7440	7489	7537	7586	7634	7682	7731	7779	7828	7876		
7924	7973	8021	8070	8118	8167	8215	8263	8312	8360		
8409	8457	8505	8554	8602	8651	8699	8747	8796	8844		
8893	8941	8989	9038	9086	9135	9183	9231	9280	9328		
9377	9425	9473	9522	9570	9619	9667	9715	9764	9812		
9861	9909	9957	0006	0054	0103	0151	0199	0248	0296		
9530345	0393	0441	0490	0538	0587	0635	0683	0732	0780		
0828	0877	0925	0974	1022	1070	1119	1167	1215	1264		
1312	1361	1409	1457	1506	1554	1603	1651	1699	1748		
1796	1844	1893	1941	1989	2038	2086	2135	2183	2231		
2280	2328	2376	2425	2473	2522	2570	2618	2667	2715		
2763	2812	2860	2908	2957	3005	3054	3102	3150	3199		
3247	3295	3344	3392	3440	3489	3537	3585	3634	3682		
3731	3779	3827	3876	3924	3972	4021	4069	4117	4166		
4214	4262	4311	4359	4407	4456	4504	4552	4601	4649		
4697	4746	4794	4842	4891	4939	4987	5036	5084	5132		
5181	5229	5277	5326	5374	5422	5471	5519	5567	5616		
5664	5712	5761	5809	5857	5906	5954	6002	6051	6099		
6147	6196	6244	6292	6341	6389	6437	6486	6534	6582		
6631	6679	6727	6776	6824	6872	6921	6969	7017	7065		
7114	7162	7210	7259	7307	7355	7404	7452	7500	7549		
7597	7645	7694	7742	7790	7838	7887	7935	7983	8032		
8080	8128	8177	8225	8273	8321	8370	8418	8466	8515		
8563	8611	8660	8708	8756	8804	8853	8901	8949	8998		48
9046	9094	9143	9191	9239	9287	9336	9384	9432	9481		1 5
9529	9577	9625	9674	9722	9770	9819	9867	9915	9963		2 10 3 14
9540012	0060	0108	0157	0205	0253	0301	0350	0398	0446		4 19
0494	0543	0591	0639	0688	0736	0784	0832	0881	0929		5 24
0977	1025	1074	1122	1170	1219	1267	1315	1363	1412		6 29
1460	1508	1556	1605	1653	1701	1749	1798	1846	1894		7 34 8 38
1943	1991	2039	2087	2136	2184	2232	2280	2329	2377		9 43
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02	3390	3438	3487	3535	3583	3631	[illegible]	3728	3776	3824	
03	3873	3921	3969	4017	4065	4114	4162	4210	4258	4307	
04	4355	4403	4451	4500	4548	4596	4644	4692	4741	4789	
05	4837	4885	4934	4982	5030	5078	5127	5175	5223	5271	
06	5319	5368	5416	5464	5512	5561	5609	5657	5705	5753	
07	5802	5850	5898	5946	5994	6043	6091	6139	6187	6236	
08	6284	6332	6380	6428	6477	6525	6573	6621	6669	6718	
09	6766	6814	6862	6910	6959	7007	7055	7103	7152	7200	
9010	7248	7296	7344	7393	7441	7489	7537	7585	[illegible]	[illegible]	
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12	8212	8260	8308	8356	8405	[illegible]	8501	8549	8597	8646	
13	8694	8742	8790	8838	8886	8935	8983	9031	9079	9127	
14	9176	9224	9272	9320	9368	9416	9465	9513	9561	9609	
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18	1102	1150	1199	1247	1295	1343	1391	1439	1488	1536	
19	1584	1632	1680	1728	1776	1825	1873	1921	1969	2017	
9020	2065	2114	2162	2210	2258	2306	2354	2402	2451	2499	
21	2547	2595	2643	2691	2739	2788	2836	[illegible]	2932	2980	
22	3028	3076	3125	3173	3221	3269	3317	3365	3413	3461	
23	3510	3558	3606	3654	3702	3750	3798	3846	3895	3943	
24	3991	4039	4087	4135	4183	4231	[illegible]	4328	4376	4424	
25	4472	4520	4568	4616	4665	4713	4761	4809	4857	4905	
26	4953	5001	5050	5098	5146	5194	5242	5290	5338	5386	
27	5434	5483	5531	5579	5627	5675	5723	5771	5819	5867	
28	5916	5964	6012	6060	6108	6156	6204	6252	6300	6348	
29	6397	6445	6493	6541	6589	6637	6685	6733	6781	6829	
9030	[illegible]	6926	6974	7022	7070	7118	7166	7214	7262	7310	
31	7358	7407	7455	7503	7551	7599	7647	7695	7743	7791	
32	7839	7887	7935	7984	8032	8080	8128	8176	[illegible]	8272	
33	[illegible]	8368	8416	[illegible]	8512	8560	8609	8657	8705	8753	
34	8801	[illegible]	8897	8945	8993	9041	9089	9137	9185	[illegible]	
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36	9762	9810	9858	9906	9954	$\bar{0}003$	[illegible]	0099	0147	0195	
37	9560243	0291	0339	0387	0435	0483	0531	0579	0627	0675	
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39	1204	1252	1300	1348	1396	1444	1492	1540	[illegible]	1636	
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41	2165	2213	2261	2309	2357	2405	2453	2501	2549	2597	
42	2645	[illegible]	2741	2789	2837	[illegible]	2933	2981	[illegible]	3077	
43	3125	3173	[illegible]	3269	3317	3365	3413	3461	[illegible]	[illegible]	
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46	[illegible]	4614	4662	4710	[illegible]	[illegible]	4854	4902	4950	4998	
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48	5526	5574	5622	5670	5718	5766	5814	5862	5910	5958	
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6966	7014	7062	7110	7158	7206	7254	7302	7349	7397		48
7445	7493	7541	7589	7637	7685	7733	7781	7829	7877		1 5
7925	7973	8021	8069	8117	8165	8213	8261	8309	8357		2 10 3 14
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9364	9412	9460	9508	9556	9604	9652	9700	9748	9796		6 29 7 34
9844	9892	9940	9988	0035	0083	0131	0179	0227	0275		8 38
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0803	0851	0898	0946	0994	1042	1090	1138	1186	1234		
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5115	5163	5211	5259	5307	5355	5402	5450	5498	5546		
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1337	1385	1432	1480	1528	1576	1624	1672	1719	1767		
1815	1863	1911	1958	2006	2054	2102	2150	2198	2245		
2293	2341	2389	2437	2484	2532	2580	2628	2676	2723		
2771	2819	2867	2915	2962	3010	3058	3106	3154	3202		
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04	2322	2370	2418	2466	2513	2561	2609	2656	2704	2752	
05	2800	2847	2895	2943	2990	3038	3086	3133	3181	3229	
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13	6614	6661	6709	6757	6804	6852	6900	6947	6995	7043	
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17	8520	8567	8615	8662	8710	8758	8805	8853	8901	8948	
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23	1377	1424	1472	1520	1567	1615	1662	1710	1758	1805	
24	1853	1900	1948	1996	2043	2091	2138	2186	2234	2281	
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26	2805	2852	2900	2947	2995	3043	3090	3138	3185	3233	
27	3281	3328	3376	3423	3471	3518	3566	3614	3661	3709	
28	3756	3804	3851	3899	3947	3994	4042	4089	4137	4184	
29	4232	4280	4327	4375	4422	4470	4517	4565	4613	4660	
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31	5183	5231	5279	5326	5374	5421	5469	5516	5564	5611	
32	5659	5707	5754	5802	5849	5897	5944	5992	6039	6087	
33	6135	6182	6230	6277	6325	6372	6420	6467	6515	6563	
34	6610	6658	6705	6753	6800	6848	6895	6943	6990	7038	
35	7086	7133	7181	7228	7276	7323	7371	7418	7466	7513	
36	7561	7608	7656	7704	7751	7799	7846	7894	7941	7989	
37	8036	8084	8131	8179	8226	8274	8321	8369	8416	8464	
38	8512	8559	8607	8654	8702	8749	8797	8844	8892	8939	
39	8987	9034	9082	9129	9177	9224	9272	9319	9367	9414	
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41	9937	9985	$\overline{0}032$	0080	0127	0175	0222	0270	0317	0365	
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43	0887	0935	0982	1030	1077	1125	1172	1220	1267	1315	
44	1362	1410	1457	1505	1552	1600	1647	1695	1742	1790	
45	1837	1885	1932	1980	2027	2075	2122	2170	2217	2264	
46	2312	2359	2407	2454	2502	2549	2597	2644	2692	2739	
47	2787	2834	2882	2929	2977	3024	3072	3119	3167	3214	
48	3262	3309	3357	3404	3451	3499	3546	3594	3641	3689	
49	3736	3784	3831	3879	3926	3974	4021	4069	4116	4163	
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4686	4733	4780	4828	4875	4923	4970	5018	5065	5113	
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7058	7105	7153	7200	7248	7295	7342	7390	7437	7485	
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9620377	0424	0472	0519	0566	0614	0661	0709	0756	0803	
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1799	1846	1893	1941	1988	2035	2083	2130	2178	2225	
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2746	2793	2841	2888	2936	2983	3030	3078	3125	3172	
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4167	4214	4262	4309	4356	4404	4451	4498	4546	4593	
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9630319	0366	0413	0461	0508	0555	0602	0650	0697	0744	
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1264	1312	1359	1406	1454	1501	1548	1595	1643	1690	
1737	1784	1832	1879	1926	1974	2021	2068	2115	2163	
2210	2257	2304	2352	2399	2446	2493	2541	2588	2635	
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4100	4147	4195	4242	4289	4336	4384	4431	4478	4525	
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5517	5565	5612	5659	5706	5753	5801	5848	5895	5942	
5990	6037	6084	6131	6179	6226	6273	6320	6367	6415	
6462	6509	6556	6604	6651	6698	6745	6792	6840	6887	
6934	6981	7028	7076	7123	7170	7217	7265	7312	7359	
7406	7453	7501	7548	7595	7642	7689	7737	7784	7831	
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Pro.

48	
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Pts.

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02	8822	8869	8917	8964	9011	9058	9105	9153	9200	9247	
03	9294	9341	9389	9436	9483	9530	9577	9625	9672	9719	
04	9766	9813	9860	9908	9955	0002	0049	0096	0144	0191	
05	9640238	0285	0332	0379	0427	0474	0521	0568	0615	0663	
06	0710	0757	0804	0851	0898	0946	0993	1040	1087	1134	
07	1181	1229	1276	1323	1370	1417	1464	1512	1559	1606	
08	1653	1700	1747	1795	1842	1889	1936	1983	2030	2078	
09	2125	2172	2219	2266	2313	2361	2408	2455	2502	2549	
9210	2596	2643	2691	2738	2785	[illegible]	2879	2926	2974	3021	
11	3068	3115	3162	3209	3256	3304	3351	3398	3445	3492	
[illegible]	3539	3586	3634	3681	3728	3775	3822	3869	3916	[illegible]	
13	4011	4058	4105	4152	4199	4246	4294	4341	4388	4435	
14	4482	4529	4576	4623	4671	4718	4765	4812	4859	4906	
15	4953	5001	5048	[illegible]	5142	5189	5236	5283	5330	5378	
16	5425	5472	5519	5566	5613	5660	5707	5755	5802	5849	
17	5896	5943	5990	6037	6084	6 31	6179	6226	6273	6320	
18	6367	6414	6461	6508	6555	6603	6650	6697	6744	6791	
19	[illegible]	6885	6932	6979	7027	7074	7121	7168	7215	7262	
9220	7309	7356	7403	7451	7498	7545	7592	7639	7686	7733	
21	7780	7827	7874	7922	7969	8016	8063	8110	8157	8204	
22	8251	8298	8345	8392	8440	8487	8534	8581	8628	[illegible]	
23	8722	8769	8816	8863	8910	8958	9005	9052	9099	9146	
24	9193	9240	9287	9334	9381	9428	9475	9523	9570	9617	
25	9664	9711	9758	9805	9852	9899	9946	9993	0040	0087	
26	9650135	0182	0229	0276	0323	0370	0417	0464	0511	0558	
27	0605	0652	0699	0746	0793	0841	0888	0935	0982	1029	
28	1076	1123	1170	1217	1264	1311	1358	1405	1452	1499	
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37	5309	5356	5403	5450	5497	5545	5592	5639	5686	5733	
38	5780	5827	5874	5921	5968	6015	6062	6109	6156	6203	
39	6250	6297	6344	6391	6438	6485	6532	6579	6626	6673	
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41	7190	7237	7284	7331	7378	7425	7472	7519	[illegible]	7613	
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45	9069	9116	9163	9210	9257	9304	9351	9398	9445	9492	
46	9539	9586	9633	9680	9727	9774	9821	9868	9915	9962	
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2356	2403	2450	2497	2544	2591	2638	2685	2732	2779		1 5
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1559	1606	1653	1700	1746	1793	1840	1886	1933	1980		1 5
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14	1362	1409	1456	1502	1549	1595	1642	1689	1735	1782	
15	1829	1875	1922	1969	2015	2062	2108	2155	2202	2248	
16	2295	2341	2388	2435	2481	2528	2574	2621	2668	2714	
17	2761	2808	2854	2901	2947	2994	3041	3087	3134	3180	
18	3227	3274	3320	3367	3413	3460	3507	3553	3600	3647	
19	3693	3740	3786	3833	3880	3926	3973	4019	4066	4113	
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21	4625	4672	4718	4765	4811	4858	4905	4951	4998	5044	
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24	6023	6069	6116	6162	6209	6256	6302	6349	6395	6442	
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28	7885	7932	7978	8025	8072	8118	8165	8211	8258	8304	
29	8351	8397	8444	8491	8537	8584	8630	8677	8723	8770	
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36	1608	1655	1701	1748	1794	1841	1888	1934	1981	2027	
37	2074	2120	2167	2213	2260	2306	2353	2399	2446	2492	
38	2539	2585	2632	2678	2725	2771	2818	2864	2911	2957	
39	3004	3050	3097	3143	3190	3236	3283	3329	3376	3422	
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9045	9091	9138	9184	9231	9277	9324	9370	9416	9463		1 5
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5731	5777	5823	5870	5916	5962	6008	6055	6101	6147		
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7118	7165	7211	7257	7303	7350	7396	7442	7488	7535		46
7581	7627	7673	7720	7766	7812	7858	7905	7951	7997		1 5
8043	8089	8136	8182	8228	8274	8321	8367	8413	8459		2 9
8506	8552	8598	8644	8690	8737	8783	8829	8875	8922		3 14
8968	9014	9060	9107	9153	9199	9245	9291	9338	9384		4 18
9430	9476	9523	9569	9615	9661	9707	9754	9800	9846		5 23
9892	9938	9985	0̄031	0077	0123	0170	0216	0262	0308		6 28
)730354	0401	0447	0493	0539	0585	0632	0678	0724	0770		7 32 8 37
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04	3126	3172	3219	3265	3311	3357	3403	3449	3496	3542	
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06	4050	4096	4142	4188	4234	4281	4327	4373	4419	[illegible]	
07	4511	4 58	4604	4650	4696	4742	4788	4835	4881	4927	
08	4973	5019	5065	5112	5158	5204	5250	5296	5342	5389	
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13	7281	7327	7373	7419	7465	7511	7557	7604	7650	7696	
14	7742	7788	7834	7880	7926	7973	8019	8065	8111	8157	
15	8203	8249	8295	8342	8388	8434	8480	8526	8572	8618	
16	8664	8711	8757	8803	8849	8895	8941	8987	9033	9080	
17	9126	9172	9218	9264	9310	9356	9402	9449	9495	9541	
18	9587	9633	9679	9725	9771	9817	9864	9910	9956	0̄002	
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22	1431	1477	1523	1569	1615	1661	1708	1754	1800	1846	
23	1892	1938	1984	2030	2076	2122	2168	2215	2261	2307	
24	2353	2399	2445	2491	2537	2583	2629	2675	2721	2768	
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26	3274	3320	3367	3413	3459	3505	3551	3597	3643	3689	
27	3735	3781	3827	3873	3919	3965	4011	4058	4104	4150	
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29	4656	4702	4748	4795	4841	4887	4933	4979	5025	5071	
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35	7419	7465	7511	7557	7603	7649	7695	7741	7787	7833	
36	7879	7925	7971	8017	8063	8109	8155	8201	8248	8294	
37	8340	8386	8432	8478	8524	8570	8616	8662	8708	8754	
38	8800	8846	[illegible]	8938	8984	9030	9076	9122	[illegible]	9214	
39	9260	9306	9352	9398	9444	9490	[illegible]	9582	9628	9674	
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41	9750180	0226	0272	0318	0364	0410	0456	0502	0548	[illegible]	
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43	1100	1146	1192	1238	1284	1330	1376	1422	1468	1514	
44	1560	1606	1652	1698	1744	1790	1836	1882	1928	1974	
45	2020	2066	2112	2158	2204	2250	2296	[illegible]	2387	2433	
46	2479	2525	2571	2617	2663	2709	2755	2801	[illegible]	2893	
47	2939	2985	3031	3077	3123	3169	3215	3261	3307	3353	
48	3399	3445	3491	3537	3583	3629	3675	3721	3767	3813	
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52	5237	5283	5329	5375	5421	5467	5513	5559	5605	5651		1 | 5
53	5697	5743	5788	5834	5880	5926	5972	6018	6064	6110		2 | 9
54	6156	6202	6248	6294	6340	6386	6432	6478	6523	6569		3 | 14 4 | 18
55	6615	6661	6707	6753	6799	6845	6891	6937	6983	7029		5 | 23
56	7075	7121	7166	7212	7258	7304	7350	7396	7442	7488		6 | 28
57	7534	7580	7626	7672	7718	7763	7809	7855	7901	7947		7 | 32
58	7993	8039	8085	8131	8177	8223	8269	8315	8360	8406		8 | 37
59	8452	8498	8544	8590	8636	8682	8728	8774	8820	8865		9 | 41
9460	8911	8957	9003	9049	9095	9141	9187	9233	9279	9325		
61	9370	9416	9462	9508	9554	9600	9646	9692	9738	9784		
62	9829	9875	9921	9967	$\overline{0}$013	0059	0105	0151	0197	0243		
63	9760288	0334	0380	0426	0472	0518	0564	0610	0656	0701		
64	0747	0793	0839	0885	0931	0977	1023	1069	1114	1160		
65	1206	1252	1298	1344	1390	1436	1481	1527	1573	1619		
66	1665	1711	1757	1803	1849	1894	1940	1986	2032	2078		
67	2124	2170	2216	2261	2307	2353	2399	2445	2491	2537		
68	2582	2628	2674	2720	2766	2812	2858	2904	2949	2995		
69	3041	3087	3133	3179	3225	3270	3316	3362	3408	3454		
9470	3500	3546	3592	3637	3683	3729	3775	3821	3867	3913		
71	3958	4004	4050	4096	4142	4188	4233	4279	4325	4371		
72	4417	4463	4509	4554	4600	4646	4692	4738	4784	4830		
73	4875	4921	4967	5013	5059	5105	5150	5196	5242	5288		
74	5334	5380	5425	5471	5517	5563	5609	5655	5701	5746		
75	5792	5838	5884	5930	5976	6021	6067	6113	6159	6205		
76	6251	6296	6342	6388	6434	6480	6525	6571	6617	6663		
77	6709	6755	6800	6846	6892	6938	6984	7030	7075	7121		
78	7167	7213	7259	7305	7350	7396	7442	7488	7534	7579		
79	7625	7671	7717	7763	7808	7854	7900	7946	7992	8038		
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81	8541	8587	8633	8679	8725	8770	8816	8862	8908	8954		
82	9000	9045	9091	9137	9183	9229	9274	9320	9366	9412		
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84	9915	9961	$\overline{0}$007	0053	0099	0144	0190	0236	0282	0328		
85	9770373	0419	0465	0511	0556	0602	0648	0694	0740	0785		
86	0831	0877	0923	0969	1014	1060	1106	1152	1197	1243		
87	1289	1335	1381	1426	1472	1518	1564	1609	1655	1701		
88	1747	1793	1838	1884	1930	1976	2021	2067	2113	2159		
89	2204	2250	2296	2342	2388	2433	2479	2525	2571	2616		
9490	2662	2708	2754	2799	2845	2891	2937	2982	3028	3074		
91	3120	3165	3211	3257	3303	3349	3394	3440	3486	3532		
92	3577	3623	3669	3715	3760	3806	3852	3898	3943	3989		45
93	4035	4081	4126	4172	4218	4264	4309	4355	4401	4447		1 | 5
94	4492	4538	4584	4630	4675	4721	4767	4812	4858	4904		2 | 9 3 | 14
95	4950	4995	5041	5087	5133	5178	5224	5270	5316	5361		4 | 18
96	5407	5453	5499	5544	5590	5636	5681	5727	5773	5819		5 | 23
97	5864	5910	5956	6002	6047	6093	6139	6184	6230	6276		6 | 27
98	6322	6367	6413	6459	6505	6550	6596	6642	6687	6733		7 | 32 8 | 36
99	6779	6825	6870	6916	6962	7007	7053	7099	7145	7190		9 | 41
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02	8150	8196	8242	8287	8333	8379	8424	8470	8516	8562	
03	8607	8653	8699	8744	8790	8836	8881	8927	8973	9019	
04	9064	9110	9156	9201	9247	9293	9338	9384	9430	9476	
05	9521	9567	9613	9658	9704	9750	9795	9841	9887	9932	
06	9978	5024	0069	0115	0161	0207	0252	0298	0344	0389	
07	9780435	0481	0526	0572	0618	0663	0709	0755	0800	0846	
08	0892	0937	0983	1029	1074	1120	1166	1211	1257	1303	
09	1348	1394	1440	1485	1531	1577	1622	1668	1714	1760	
9510	1805	1851	1897	1942	1988	2033	2079	2125	2170	2216	
11	2262	2307	2353	2399	2444	2490	2536	2581	2627	2673	
12	2718	2764	2810	2855	2901	2947	2992	3038	3084	3129	
13	3175	3221	3266	3312	3358	3403	3449	3495	3540	3586	
14	3631	3677	3723	3768	3814	3860	3905	3951	3997	4042	
15	4088	4134	4179	4225	4270	4316	4362	4407	4453	4499	
16	4544	4590	4636	4681	4727	4773	4818	4864	4909	4955	
17	5001	5046	5092	5138	5183	5229	5274	5320	5366	5411	
18	5457	5503	5548	5594	5640	5685	5731	5776	5822	5868	
19	5913	5959	6005	6050	6096	6141	6187	6233	6278	6324	
9520	6369	6415	6461	6506	6552	6598	6643	6689	6734	6780	
21	6826	6871	6917	6962	7008	7054	7099	7145	7191	7236	
22	7282	7327	7373	7419	7464	7510	7555	7601	7647	7692	
23	7738	7783	7829	7875	7920	7966	8011	8057	8103	8148	
24	8194	8239	[illegible]	8331	8376	8422	8467	8513	8559	8604	
25	8650	8695	8741	8787	[illegible]	8878	8924	8969	9015	9060	
26	9106	9151	9197	9243	9288	9334	9379	9425	9470	9516	
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28	9790017	0063	0109	0154	0200	0245	0291	0337	0382	0428	
29	0473	0519	0564	0610	0656	0701	0747	0792	0838	0883	
9530	0929	0975	1020	1066	1111	1157	1202	1248	1294	1339	
31	1385	1430	1476	1521	1567	1613	1658	1704	1749	1795	
32	1840	1886	1931	1977	2023	2068	2114	2159	2205	2250	
33	2296	2341	2387	2433	2478	2524	2569	2615	2660	[illegible]	
34	2751	2797	2843	2888	2934	2979	3025	3070	3116	3161	
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36	3662	3708	3754	3799	3845	3890	3936	3981	4027	[illegible]	
37	4118	4163	4209	4254	4300	4346	4391	4437	4482	4528	
38	4573	4619	4664	4710	4755	4801	4846	4892	4937	4983	
39	5028	5074	5120	5165	5211	5256	5302	5347	5393	5438	
9540	5484	5529	5575	5620	5666	5711	5757	5802	5848	5893	
41	5939	5984	6030	6076	6121	6167	6212	6258	6303	6349	
42	6394	6440	6485	6531	6576	6622	6667	6713	6758	6804	
43	6849	6895	6940	6986	7031	7077	7122	7168	7213	7259	
44	7304	7350	7395	7441	7486	7532	7577	7623	7668	7714	
45	7759	7805	7850	[illegible]	7941	7987	8032	[illegible]	8123	8169	
46	8214	8260	8305	8351	8396	[illegible]	8487	8533	8578	[illegible]	
47	8669	8715	[illegible]	8806	8851	8897	[illegible]	8988	9033	9079	
48	9124	9170	9215	9261	[illegible]	9352	9397	9442	9488	9533	
49	9579	9624	9670	9715	9761	9806	9852	[illegible]	[illegible]	9988	
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0488	0534	0579	0625	0670	0716	0761	0807	0852	0898		46
0943	0989	1034	1080	1125	1170	1216	1261	1307	1352		1 5
1398	1443	1489	1534	1580	1625	1671	1716	1761	1807		2 9
1852	1898	1943	1989	2034	2080	2125	2171	2216	2261		3 14
2307	2352	2398	2443	2489	2534	2580	2625	2671	2716		4 18
2761	2807	2852	2898	2943	2989	3034	3080	3125	3170		5 23
3216	3261	3307	3352	3398	3443	3489	3534	3579	3625		6 28
3670	3716	3761	3807	3852	3897	3943	3988	4034	4079		7 32 8 37
4125	4170	4215	4261	4306	4352	4397	4443	4488	4533		9 41
4579	4624	4670	4715	4761	4806	4851	4897	4942	4988		
5033	5079	5124	5169	5215	5260	5306	5351	5397	5442		
5487	5533	5573	5624	5669	5714	5760	5805	5851	5896		
5942	5987	6032	6078	6123	6169	6214	6259	6305	6350		
6396	6441	6486	6532	6577	6623	6668	6714	6759	6804		
6850	6895	6941	6986	7031	7077	7122	7168	7213	7258		
7304	7349	7395	7440	7485	7531	7576	7622	7667	7712		
7758	7803	7849	7894	7939	7985	8030	8075	8121	8166		
8212	8257	8302	8348	8393	8439	8484	8529	8575	8620		
8666	8711	8756	8802	8847	8892	8938	8983	9029	9074		
9119	9165	9210	9256	9301	9346	9392	9437	9482	9528		
9573	9619	9664	9709	9755	9800	9845	9891	9936	9982		
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1388	1433	1479	1524	1569	1615	1660	1705	1751	1796		
1841	1887	1932	1977	2023	2068	2113	2159	2204	2250		
2295	2340	2386	2431	2476	2522	2567	2612	2658	2703		
2748	2794	2839	2884	2930	2975	3020	3066	3111	3156		
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3655	3700	3746	3791	3836	3882	3927	3972	4018	4063		
4108	4154	4199	4244	4290	4335	4380	4426	4471	4516		
4562	4607	4652	4698	4743	4788	4834	4879	4924	4970		
5015	5060	5106	5151	5196	5241	5287	5332	5377	5423		
5468	5513	5559	5604	5649	5695	5740	5785	5831	5876		
5921	5966	6012	6057	6102	6148	6193	6238	6284	6329		
6374	6420	6465	6510	6555	6601	6646	6691	6737	6782		
6827	6873	6918	6963	7008	7054	7099	7144	7190	7235		
7280	7326	7371	7416	7461	7507	7552	7597	7643	7688		
7733	7778	7824	7869	7914	7960	8005	8050	8095	8141		
8186	8231	8277	8322	8367	8412	8458	8503	8548	8594		
8639	8684	8729	8775	8820	8865	8911	8956	9001	9046		
9092	9137	9182	9228	9273	9318	9363	9409	9454	9499		45
9544	9590	9635	9680	9726	9771	9816	9861	9907	9952		1 5
9997	0042	0088	0133	0178	0223	0269	0314	0359	0405		2 9
9820450	0495	0540	0586	0631	0676	0721	0767	0812	0857		3 14 4 18
0902	0948	0993	1038	1083	1129	1174	1219	1264	1310		5 23
1355	1400	1445	1491	1536	1581	1626	1672	1717	1762		6 27
1807	1853	1898	1943	1988	2034	2079	2124	2169	2215		7 32 8 36
2260	2305	2350	2396	2441	2486	2531	2577	2622	2667		9 41
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9600	9822712	2758	2803	2848	2893	2938	2984	3029	3074	3119	
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02	3617	3662	3707	3753	3798	3843	3888	3934	3979	4024	
03	4069	4114	4160	4205	4250	4295	4341	4386	4431	4476	
04	4522	4567	4612	4657	4702	4748	4793	4838	4883	4928	
05	4974	5019	5064	5109	5155	5200	5245	5290	5335	5381	
06	5426	5471	5516	5561	5607	5652	5697	5742	5787	5833	
07	5878	5923	5968	6014	6059	6104	6149	6194	6240	6285	
08	6330	6375	6420	6466	6511	6556	6601	6646	6692	6737	
09	6782	6827	6872	6918	6963	7008	7053	7098	7143	7189	
9610	7234	7279	7324	7369	7415	7460	7505	7550	7595	7641	
11	7686	7731	7776	7821	7867	7912	7957	8002	8047	8092	
12	8138	8183	8228	8273	8318	8364	8409	8454	8499	8544	
13	8589	8635	8680	8725	8770	8815	8860	8906	8951	8996	
14	9041	9086	9132	9177	9222	9267	9312	9357	9403	9448	
15	9493	9538	9583	9628	9674	9719	9764	9809	9854	9899	
16	9945	9990	$\overline{0}035$	0080	0125	0170	0216	0261	0306	0351	
17	9830396	0441	0486	0532	0577	0622	0667	0712	0757	0803	
18	0848	0893	0938	0983	1028	1073	1119	1164	1209	1254	
19	1299	1344	1390	1435	1480	1525	1570	1615	1660	1706	
9620	1751	1796	1841	1886	1931	1976	2022	2067	2112	2157	
21	2202	2247	2292	2338	2383	2428	2473	2518	2563	2608	
22	2654	2699	2744	2789	2834	2879	2924	2969	3015	3060	
23	3105	3150	3195	3240	3285	3331	3376	3421	3466	3511	
24	3556	3601	3646	3692	3737	3782	3827	3872	3917	3962	
25	4007	4053	4098	4143	4188	4233	4278	4323	4368	4413	
26	4459	4504	4549	4594	4639	4684	4729	4774	4819	4865	
27	4910	4955	5000	5045	5090	5135	5180	5225	5271	5316	
28	5361	5406	5451	5496	5541	5586	5631	5677	5722	5767	
29	5812	5857	5902	5947	5992	6037	6082	6128	6173	6218	
9630	6263	6308	6353	6398	6443	6488	6533	6579	6624	6669	
31	6714	6759	6804	6849	6894	6939	6984	7029	7075	7120	
32	7165	7210	7255	7300	7345	7390	7435	7480	7525	7571	
33	7616	7661	7706	7751	7796	7841	7886	7931	7976	[illegible]	
34	8066	8111	8157	8202	8247	8292	8337	8382	8427	8472	
35	8517	8562	8607	8652	8697	8743	8788	8833	8878	8923	
36	8968	9013	9058	9103	9148	9193	9238	9283	9328	9374	
37	9419	9464	9509	9554	9599	9644	9689	9734	9779	9824	
38	9869	9914	9959	$\overline{0}004$	0049	0095	0140	0185	0230	0275	
39	9840320	0365	0410	0455	0500	0545	0590	0635	0680	0725	
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41	1221	1266	1311	1356	1401	1446	1491	1536	1581	1626	
42	1671	1716	1761	1806	1851	1896	1942	1987	2032	2077	
43	2122	2167	2212	2257	2302	2347	2392	2437	2482	2527	
44	2572	2617	2662	2707	2752	2797	2842	2887	2932	2977	
45	3022	3067	3112	3157	3202	3247	3292	3338	3383	3428	
46	3473	3518	3563	3608	3653	3698	3743	3788	3833	3878	
47	3923	3968	4013	4058	4103	4148	4193	4238	4283	4328	
48	4373	4418	4463	4508	4553	4598	4643	4688	4733	4778	
49	4823	4868	4913	4958	5003	5048	5093	5138	5183	5228	
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9845273	5318	5363	5408	5453	5498	5543	5588	5633	5678		
5723	5768	5813	5858	5903	5948	5993	6038	6083	6128	45	45
6173	6218	6263	6308	6353	6398	6443	6488	6533	6578		1 5
6623	6668	6713	6758	6803	6848	6893	6938	6983	7028		2 9
7073	7118	7163	7208	7253	7298	7343	7388	7433	7478		3 14 4 18
7523	7568	7613	7658	7703	7748	7793	7838	7883	7928		5 23
7973	8018	8063	8107	8152	8197	8242	8287	8332	8377		6 27
8422	8467	8512	8557	8602	8647	8692	8737	8782	8827		7 32 8 36
8872	8917	8962	9007	9052	9097	9142	9187	9232	9277		9 41
9322	9367	9412	9457	9502	9546	9591	9636	9681	9726		
9771	9816	9861	9906	9951	9996	$\overline{0}041$	0086	0131	0176		
9850221	0266	0311	0356	0401	0446	0491	0535	0580	0625		
0670	0715	0760	0805	0850	0895	0940	0985	1030	1075		
1120	1165	1210	1255	1300	1345	1389	1434	1479	1524		
1569	1614	1659	1704	1749	1794	1839	1884	1929	1974		
2019	2064	2108	2153	2198	2243	2288	2333	2378	2423		
2468	2513	2558	2603	2648	2693	2737	2782	2827	2872		
2917	2962	3007	3052	3097	3142	3187	3232	3277	3321		
3366	3411	3456	3501	3546	3591	3636	3681	3726	3771		
3816	3861	3905	3950	3995	4040	4085	4130	4175	4220		
4265	4310	4355	4399	4444	4489	4534	4579	4624	4669		
4714	4759	4804	4849	4893	4938	4983	5028	5073	5118		
5163	5208	5253	5298	5342	5387	5432	5477	5522	5567		
5612	5657	5702	5747	5791	5836	5881	5926	5971	6016		
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7407	7452	7497	7542	7587	7632	7677	7722	7766	7811		
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8754	8798	8843	8888	8933	8978	9023	9068	9112	9157		
9202	9247	9292	9337	9382	9426	9471	9516	9561	9606		
9651	9696	9740	9785	9830	9875	9920	9965	$\overline{0}010$	0054		
9860099	0144	0189	0234	0279	0324	0368	0413	0458	0503		
0548	0593	0637	0682	0727	0772	0817	0862	0907	0951		
0996	1041	1086	1131	1176	1220	1265	1310	1355	1400		
1445	1489	1534	1579	1624	1669	1714	1758	1803	1848		
1893	1938	1983	2027	2072	2117	2162	2207	2252	2296		
2341	2386	2431	2476	2521	2565	2610	2655	2700	2745		
2790	2834	2879	2924	2969	3014	3058	3103	3148	3193		
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3686	3731	3776	3820	3865	3910	3955	4000	4044	4089		
4134	4179	4224	4268	4313	4358	4403	4448	4493	4537		44
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5926	5971	6016	6060	6105	6150	6195	6240	6284	6329		5 22
6374	6419	6464	6508	6553	6598	6643	6687	6732	6777		6 26
6822	6867	6911	6956	7001	7046	7090	7135	7180	7225		7 31 8 35
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06	9870403	0448	0492	0537	0582	0627	0671	0716	0761	0806	
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09	1745	1790	1834	1879	1924	1969	2013	2058	2103	2148	
9710	2192	2237	2282	2326	2371	2416	2461	2505	2550	2595	
11	2640	2684	2729	2774	2818	2863	2908	2953	2997	3042	
12	3087	3131	3176	3221	3266	3310	3355	3400	3444	3489	
13	3534	3579	3623	3668	3713	3757	3802	3847	3892	3936	
14	3981	4026	4070	4115	4160	4205	4249	4294	4339	4383	
15	4428	4473	4517	4562	4607	4652	4696	4741	4786	4830	
16	4875	4920	4964	5009	5054	5099	5143	5188	5233	5277	
17	5322	5367	5411	5456	5501	5545	5590	5635	5680	5724	
18	5769	5814	5858	5903	5948	5992	6037	6082	6126	6171	
19	6216	6261	6305	6350	6395	6439	6484	6529	6573	6618	
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21	7109	7154	7199	7243	7288	7333	7377	7422	7467	7511	
22	7556	7601	7646	7690	7735	7780	7824	7869	7914	7958	
23	8003	8048	8092	8137	8182	8226	8271	8316	8360	8405	
24	8450	8494	8539	8583	8628	8673	8717	8762	8807	8851	
25	8896	8941	8985	9030	9075	9119	9164	9209	9253	9298	
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41	6035	6080	6125	6169	6214	6258	6303	6348	6392	6437	
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43	6927	6972	7016	7061	7105	7150	7194	7239	7284	7328	
44	7373	7417	7462	7506	7551	7596	7640	7685	7729	7774	
45	7818	7863	7908	7952	7997	8041	8086	8130	8175	8220	
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47	8710	8754	8799	8843	8888	8932	8977	9022	9066	9111	
48	9155	9200	9244	9289	9333	9378	9423	9467	9512	9556	
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52	0937	0981	1026	1071	1115	1160	1204	1249	1293	1338		1 5
53	1382	1427	1471	1516	1560	1605	1649	1694	1738	1783		2 9
54	1828	1872	1917	1961	2006	2050	2095	2139	2184	2228		3 14 4 18
55	2273	2317	2362	2406	2451	2495	2540	2584	2629	2673		5 23
56	2718	2762	2807	2851	2896	2940	2985	3030	3074	3119		6 27
57	3163	3208	3252	3297	3341	3386	3430	3475	3519	3564		7 32
58	3608	3653	3697	3742	3786	3831	3875	3920	3964	4009		8 36
59	4053	4098	4142	4187	4231	4276	4320	4365	4409	4454		9 41
9760	4498	4543	4587	4632	4676	4721	4765	4810	4854	4899		
61	4943	4988	5032	5077	5121	5166	5210	5255	5299	5344		
62	5388	5433	5477	5521	5566	5610	5655	5699	5744	5788		
63	5833	5877	5922	5966	6011	6055	6100	6144	6189	6233		
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65	6722	6767	6811	6856	6900	6945	6989	7034	7078	7123		
66	7167	7212	7256	7301	7345	7390	7434	7478	7523	7567		
67	7612	7656	7701	7745	7790	7834	7879	7923	7968	8012		
68	8057	8101	8145	8190	8234	8279	8323	8368	8412	8457		
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73	9900279	0323	0368	0412	0457	0501	0546	0590	0634	0679		
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75	1168	1212	1257	1301	1345	1390	1434	1479	1523	1568		
76	1612	1656	1701	1745	1790	1834	1878	1923	1967	2012		
77	2056	2101	2145	2189	2234	2278	2323	2367	2411	2456		
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83	4721	4765	4809	4854	4898	4942	4987	5031	5076	5120		
84	5164	5209	5253	5298	5342	5386	5431	5475	5520	5564		
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86	6052	6096	6141	6185	6230	6274	6318	6363	6407	6452		
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88	6940	6984	7028	7073	7117	7161	7206	7250	7295	7339		
89	7383	7428	7472	7516	7561	7605	7649	7694	7738	7783		
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91	8271	8315	8359	8404	8448	8492	8537	8581	8625	8670		
92	8714	8758	8803	8847	8891	8936	8980	9025	9069	9113		44
93	9158	9202	9246	9291	9335	9379	9424	9468	9512	9557		1 4
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95	9910044	0089	0133	0177	0222	0266	0310	0355	0399	0443		4 18
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97	0931	0975	1020	1064	1108	1153	1197	1241	1286	1330		6 26 7 31
98	1374	1419	1463	1507	1552	1596	1640	1685	1729	1773		8 35
99	1818	1862	1906	1951	1995	2039	2083	2128	2172	2216		9 40
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02	3147	3191	3236	3280	3324	3369	3413	3457	3501	3546	
[illegible]	3590	3634	3679	3723	3767	3812	3856	3900	3944	3989	
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05	4476	4520	4565	4609	4653	4697	4742	4786	4830	4875	
06	4919	4963	5007	5052	5096	5140	5185	5229	5273	5317	
07	5362	5406	5450	5495	5539	5583	5627	5672	5716	5760	
[illegible]	5805	5849	5893	5937	5982	6026	6070	6115	6159	6203	
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11	7133	7177	7221	7266	7310	7354	7398	7443	7487	7531	
12	7575	7620	7664	7708	7752	7797	7841	7885	7929	7974	
13	8018	8062	8107	8151	8195	8239	8284	8328	8372	8416	
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15	8903	8947	8992	9036	9080	9124	9169	9213	9257	9301	
16	9345	9390	9434	9478	9522	9567	9611	9655	9699	9744	
17	9788	9832	9876	9921	9965	0009	0053	0098	0142	0186	
18	9920230	0275	0319	0363	0407	0451	0496	0540	0584	0628	
19	0673	0717	0761	0805	0850	0894	0938	0982	1026	1071	
9820	1115	1159	1203	1248	1292	1336	1380	1424	1469	1513	
21	1557	1601	1646	1690	1734	1778	1822	1867	1911	1955	
22	1999	2044	2088	2132	2176	2220	2265	2309	2353	2397	
23	2441	2486	2530	2574	2618	2662	2707	2751	2795	2839	
24	2884	2928	2972	3016	3060	3105	3149	3193	3237	3281	
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26	3768	3812	3856	3900	3944	3989	4033	4077	4121	4165	
27	4210	4254	4298	4342	4386	4431	4475	4519	4563	4607	
28	4651	4696	4740	4784	4828	4872	4917	4961	5005	5049	
29	5093	5138	5182	5226	5270	5314	5358	5403	5447	5491	
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31	5977	6021	[illegible]	6109	6154	6198	6242	6286	6330	6375	
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35	7744	7788	7832	7876	7920	7964	8009	8053	8097	8141	
36	8185	8229	8274	8318	8362	8406	8450	8494	8538	8583	
37	8627	8671	8715	8759	8803	8847	8892	8936	8980	9024	
38	9068	9112	9156	9201	9245	9289	9333	9377	9421	9465	
39	9510	9554	9598	9642	9686	9730	9774	9819	9863	9907	
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41	9930392	0436	0481	0525	0569	0613	0657	0701	0745	0789	
42	0834	0878	0922	0966	1010	1054	1098	1142	1187	1231	
43	1275	1319	1363	1407	1451	1495	1540	1584	1628	1672	
44	1716	1760	1804	1848	1893	1937	1981	2025	2069	2113	
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46	2598	2642	2687	2731	2775	2819	2863	[illegible]	2951	2995	
47	[illegible]	[illegible]	3128	3172	3216	3260	3304	3348	3392	3436	
48	3480	3524	3569	3613	3657	3701	3745	3789	3833	3877	
49	3921	3965	4010	4054	[illegible]	4142	4186	4230	4274	4318	
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5244	5288	5332	5376	5420	5464	5509	5553	5597	5641		1 4
5685	5729	5773	5817	5861	5905	5949	5993	6037	6082		2 9
6126	6170	6214	6258	6302	6346	6390	6434	6478	6522		3 13; 4 18
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7007	7051	7095	7139	7183	7227	7271	7315	7359	7404		6 26
7448	7492	7536	7580	7624	7668	7712	7756	7800	7844		7 31
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8329	8373	8417	8461	8505	8549	8593	8637	8681	8725		9 40
8769	8813	8857	8901	8945	8989	9033	9077	9122	9166		
9210	9254	9298	9342	9386	9430	9474	9518	9562	9606		
9650	9694	9738	9782	9826	9870	9914	9958	0002	0046		
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3172	3216	3260	3304	3348	3392	3436	3480	3524	3568		
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1524	1568	1612	1656	1699	1743	1787	1831	1875	1919		
1963	2007	2051	2095	2139	2182	2226	2270	2314	2358		
2402	2446	2490	2534	2578	2622	2665	2709	2753	2797		
2841	2885	2929	2973	3017	3061	3104	3148	3192	3236		43
3280	3324	3368	3412	3456	3500	3543	3587	3631	3675		1 4
3719	3763	3807	3851	3895	3939	3982	4026	4070	4114		2 9; 3 13
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4597	4641	4685	4729	4772	4816	4860	4904	4948	4992		5 22
5036	5080	5123	5167	5211	5255	5299	5343	5387	5431		6 26
5474	5518	5562	5606	5650	5694	5738	5782	5825	5869		7 30; 8 34
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02	7229	7273	7317	7361	7405	7449	7492	7536	7580	7624	
03	7668	7712	7755	7799	7843	7887	7931	7975	8019	8062	
04	8106	8150	8194	8238	8282	8326	8369	8413	8457	8501	
05	8545	8589	8632	8676	8720	8764	8808	8852	8896	8939	
06	8983	9027	9071	9115	9159	9202	9246	9290	9334	9378	
07	9422	9465	9509	9553	9597	9641	9685	9728	9772	9816	
08	9860	9904	9948	9991	0035	0079	0123	0167	0211	0254	
09	9960298	0342	0386	0430	0474	0517	0561	0605	0649	0693	
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12	1613	1657	1701	1744	1788	1832	1876	1920	1963	2007	
13	2051	2095	2139	2182	2226	2270	2314	2358	2402	2445	
14	2489	2533	2577	2621	2664	2708	2752	2796	2840	2883	
15	2927	2971	3015	3059	3102	3146	3190	3234	3278	3321	
16	3365	3409	3453	3497	3540	3584	3628	3672	3716	3759	
17	3803	3847	3891	3935	3978	4022	4066	4110	4153	4197	
18	4241	4285	4329	4372	4416	4460	4504	4548	4591	4635	
19	4679	4723	4766	4810	4854	4898	4942	4985	5029	5073	
9920	5117	5161	5204	5248	5292	5336	5379	5423	5467	5511	
21	5554	5598	5642	5686	5730	5773	5817	5861	5905	5948	
22	5992	6036	6080	6124	6167	6211	6255	6299	6342	6386	
23	6430	6474	6517	6561	6605	6649	6693	6736	6780	6824	
24	6868	6911	6955	6999	7043	7086	7130	7174	7218	7261	
25	7305	7349	7393	7436	7480	7524	7568	7611	7655	7699	
26	7743	7786	7830	7874	7918	7961	8005	8049	8093	8136	
27	8180	8224	8268	8311	8355	8399	8443	8486	8530	8574	
28	8618	8661	8705	8749	8793	8836	8880	8924	8968	9011	
29	9055	9099	9143	9186	9230	9274	9318	9361	9405	9449	
9930	9492	9536	9580	9624	9667	9711	9755	9799	9842	9886	
31	9930	9974	0017	0061	0105	0148	0192	0236	0280	0323	
32	9970367	0411	0455	0498	0542	0586	0629	0673	0717	0761	
33	0804	0848	0892	0936	0979	1023	1067	1110	1154	1198	
34	1242	1285	1329	1373	1416	1460	1504	1548	1591	1635	
35	1679	1722	1766	1810	1854	1897	1941	1985	2028	2072	
36	2116	2160	2203	2247	2291	2334	2378	2422	2465	2509	
37	2553	2597	2640	2684	2728	2771	2815	2859	2903	2946	
38	2990	3034	3077	3121	3165	3208	3252	3296	3340	3383	
39	3427	3471	3514	3558	3602	3645	3689	3733	3776	3820	
9940	3864	3908	3951	3995	4039	4082	4126	4170	4213	4257	
41	4301	4344	4388	4432	4475	4519	4563	4607	4650	4694	
42	4738	4781	4825	4869	4912	4956	5000	5043	5087	5131	
43	5174	5218	5262	5305	5349	5393	5436	5480	5524	5567	
44	5611	5655	5699	5742	5786	5830	5873	5917	5961	6004	
45	[illegible]	6092	6135	6179	6223	6266	6310	6354	6397	6441	
46	6485	6528	6572	6616	6659	6703	6747	6790	6834	6878	
47	6921	6965	7009	7052	7096	7139	7183	7227	7270	7314	
48	7358	7401	7445	7489	7532	7576	7620	[illegible]	7707	7751	
49	7794	7838	7882	7925	7969	8013	8056	8100	8144	8187	
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8667	8711	8755	8798	8842	8885	8929	8973	9016	9060		44
9104	9147	9191	9235	9278	9322	9365	9409	9453	9496		1 4
9540	9584	9627	9671	9715	9758	9802	9845	9889	9933		2 9
9976	0020	0064	0107	0151	0195	0238	0282	0325	0369		3 13
980413	0456	0500	0544	0587	0631	0674	0718	0762	0805		4 18
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1721	1765	1808	1852	1896	1939	1983	2026	2070	2114		7 31
2157	2201	2245	2288	2332	2375	2419	2463	2506	2550		8 35
2593	2637	2681	2724	2768	2811	2855	2899	2942	2986		9 40
3029	3073	3117	3160	3204	3247	3291	3335	3378	3422		
3465	3509	3553	3596	3640	3683	3727	3771	3814	3858		
3901	3945	3988	4032	4076	4119	4163	4206	4250	4294		
4337	4381	4424	4468	4512	4555	4599	4642	4686	4729		
4773	4817	4860	4904	4947	4991	5035	5078	5122	5165		
5209	5252	5296	5340	5383	5427	5470	5514	5557	5601		
5645	5688	5732	5775	5819	5862	5906	5950	5993	6037		
6080	6124	6167	6211	6255	6298	6342	6385	6429	6472		
6516	6560	6603	6647	6690	6734	6777	6821	6864	6908		
6952	6995	7039	7082	7126	7169	7213	7256	7300	7344		
7387	7431	7474	7518	7561	7605	7648	7692	7736	7779		
7823	7866	7910	7953	7997	8040	8084	8128	8171	8215		
8258	8302	8345	8389	8432	8476	8519	8563	8607	8650		
8694	8737	8781	8824	8868	8911	8955	8998	9042	9086		
9129	9173	9216	9260	9303	9347	9390	9434	9477	9521		
9564	9608	9651	9695	9739	9782	9826	9869	9913	9956		
990000	0043	0087	0130	0174	0217	0261	0304	0348	0391		
0435	0479	0522	0566	0609	0653	0696	0740	0783	0827		
0870	0914	0957	1001	1044	1088	1131	1175	1218	1262		
1305	1349	1392	1436	1479	1523	1567	1610	1654	1697		
1741	1784	1828	1871	1915	1958	2002	2045	2089	2132		
2176	2219	2263	2306	2350	2393	2437	2480	2524	2567		
2611	2654	2698	2741	2785	2828	2872	2915	2959	3002		
3046	3089	3133	3176	3220	3263	3307	3350	3394	3437		
3481	3524	3568	3611	3655	3698	3742	3785	3829	3872		
3916	3959	4003	4046	4090	4133	4177	4220	4264	4307		
4350	4394	4437	4481	4524	4568	4611	4655	4698	4742		
4785	4829	4872	4916	4959	5003	5046	5090	5133	5177		
5220	5264	5307	5351	5394	5438	5481	5524	5568	5611		
5655	5698	5742	5785	5829	5872	5916	5959	6003	6046		43
6090	6133	6177	6220	6263	6307	6350	6394	6437	6481		1 4
6524	6568	6611	6655	6698	6742	6785	6828	6872	6915		2 9
6959	7002	7046	7089	7133	7176	7220	7263	7307	7350		3 13
7393	7437	7480	7524	7567	7611	7654	7698	7741	7785		4 17
7828	7871	7915	7958	8002	8045	8089	8132	8176	8219		5 22
8262	8306	8349	8393	8436	8480	8523	8567	8610	8653		6 26
8697	8740	8784	8827	8871	8914	8958	9001	9044	9088		7 30
9131	9175	9218	9262	9305	9349	9392	9435	9479	9522		8 34
9566	9609	9653	9696	9739	9783	9826	9870	9913	9957		9 39
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10000	00000000	0434	0869	1303	1737	2171	2606	3040	3474	3908	
01	4343	4777	5211	5645	6080	6514	6948	7382	7817	8251	435
02	8685	9119	9553	9988	0̄422	0856	1290	1724	2159	2593	
03	00013027	3461	3895	4329	4764	5198	5632	6066	6500	6934	
04	7368	7802	8237	8671	9105	9539	9973	0̄407	0841	1275	
05	00021709	2143	2577	3012	3446	3880	4314	4748	5182	5616	
06	6050	6484	6918	7352	7786	8220	8654	9088	9522	9956	
07	00030390	0824	1258	1692	2126	2560	2994	3428	3862	4296	
08	4730	5164	5598	6031	6465	6899	7333	7767	8201	8635	
09	9069	9503	9937	0̄371	0805	1238	1672	2106	2540	2974	
10010	00043408	3842	4275	4709	5143	5577	6011	6445	6878	7312	
11	7746	8180	8614	9048	9481	9915	0̄349	0783	1217	1650	
12	00052084	2518	2952	3385	3819	4253	4687	5120	5554	5988	
13	6422	6855	7289	7723	8157	8590	9024	9458	9891	0̄325	
14	00060759	1192	1626	2060	2493	2927	3361	3794	4228	4662	
15	5095	5529	5963	6396	6830	7264	7697	8131	8564	8998	
16	9432	9865	0̄299	0732	1166	1600	2033	2467	2900	3334	
17	00073767	4201	4634	5068	5502	5935	6369	6802	7236	7669	
18	8103	8536	8970	9403	9837	0̄270	0704	1137	1571	2004	
19	00082438	2871	3305	3738	4172	4605	5038	5472	5905	6339	
10020	6772	7206	7639	8072	8506	8939	9373	9806	0̄239	0673	
21	00091106	1540	1973	2406	2840	3273	3706	4140	4573	5006	
22	5440	5873	6307	6740	7173	7606	8040	8473	8906	9340	434
23	9773	0̄206	0640	1073	1506	1939	2373	2806	3239	3673	
24	00104106	4539	4972	5406	5839	6272	6705	7138	7572	8005	
25	8438	8871	9305	9738	0̄171	0604	1037	1471	1904	2337	
26	00112770	3203	3636	4070	4503	4936	5369	5802	6235	6668	
27	7101	7535	7968	8401	8834	9267	9700	0̄133	0566	0999	
28	00121433	1866	2299	2732	3165	3598	4031	4464	4897	5330	
29	5763	6196	6629	7062	7495	7928	8361	8794	9227	9660	
10030	00130093	0526	0959	1392	1825	2258	2691	3124	3557	3990	
31	4423	4856	5289	5722	6155	6588	7021	7454	7887	8319	
32	8752	9185	9618	0̄051	0484	0917	1350	1783	2215	2648	
33	00143081	3514	3947	4380	4813	5246	5678	6111	6544	6977	
34	7410	7842	8275	8708	9141	9574	0̄007	0439	0872	1305	
35	00151738	2170	2603	3036	3469	3902	4334	4767	5200	5633	
36	6065	6498	6931	7363	7796	8229	8662	9094	9527	9960	
37	00160392	0825	1258	1690	2123	2556	2988	3421	3854	4286	
38	4719	5152	5584	6017	6450	6882	7315	7748	8180	8613	
39	9045	9478	9911	0̄343	0776	1208	1641	2074	2506	2939	
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41	7697	8129	8562	8994	9427	9859	0̄292	0724	1157	1589	
42	00182022	2454	2887	3319	3752	4184	4616	5049	5481	5914	433
43	6346	6779	7211	7644	8076	8508	8941	9373	9806	0̄238	
44	00190670	1103	1535	1968	2400	2832	3265	3697	4129	4562	
45	4994	5426	5859	6291	6723	7156	7588	8020	8453	8885	
46	9317	9750	0̄182	0614	1047	1479	1911	2343	2776	3208	
47	00203640	4072	4505	4937	5369	5801	6234	6666	7098	7530	
48	7963	8395	8827	9259	9691	0̄124	0556	0988	1420	1852	
49	00212285	2717	3149	3581	4013	4445	4878	5310	5742	6174	
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Pro. (Pts.)

	435	434	433
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2	87	87	87
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4	174	174	173
5	218	217	217
6	261	260	260
7	305	304	303
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9	392	391	390

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51	00220927	1359	1791	2224	2656	3088	3520	3952	4384	4816	432
52	5248	5680	6112	6544	6976	7408	7840	8272	8704	9136	
53	9568	$\bar{0}000$	0432	0864	1296	1728	2160	2592	3024	3456	
54	00233888	4320	4752	5184	5616	6048	6480	6912	7344	7776	
55	8207	8639	9071	9503	9935	$\bar{0}367$	0799	1231	1663	2095	
56	00242526	2958	3390	3822	4254	4686	5118	5549	5981	6413	
57	6845	7277	7709	8140	8572	9004	9436	9868	$\bar{0}300$	0731	
58	00251163	1595	2027	2458	2890	3322	3754	4186	4617	5049	
59	5481	5913	6344	6776	7208	7639	8071	8503	8935	9366	
10060	9798	$\bar{0}230$	0661	1093	1525	1957	2388	2820	3252	3683	
61	00264115	4547	4978	5410	5842	6273	6705	7136	7568	8000	
62	8431	8863	9295	9726	$\bar{0}158$	0589	1021	1453	1884	2316	
63	00272747	3179	3610	4042	4474	4905	5337	5768	6200	6631	
64	7063	7494	7926	8357	8789	9220	9652	$\bar{0}083$	0515	0946	
65	00281378	1809	2241	2672	3104	3535	3967	4398	4830	5261	
66	5693	6124	6555	6987	7418	7850	8281	8713	9144	9575	
67	00290007	0438	0870	1301	1732	2164	2595	3027	3458	3889	
68	4321	4752	5183	5615	6046	6477	6909	7340	7771	8203	
69	8634	9065	9497	9928	$\bar{0}359$	0791	1222	1653	2084	2516	
10070	00302947	3378	3810	4241	4672	5103	5535	5966	6397	6828	
71	7260	7691	8122	8553	8984	9416	9847	$\bar{0}278$	0709	1141	431
72	00311572	2003	2434	2865	3296	3728	4159	4590	5021	5452	
73	5883	6315	6746	7177	7608	8039	8470	8901	9332	9764	
74	00320195	0626	1057	1488	1919	2350	2781	3212	3643	4074	
75	4505	4937	5368	5799	6230	6661	7092	7523	7954	8385	
76	8816	9247	9678	$\bar{0}109$	0540	0971	1402	1833	2264	2695	
77	00333126	3557	3988	4419	4850	5281	5712	6143	6574	7004	
78	7435	7866	8297	8728	9159	9590	$\bar{0}021$	0452	0883	1314	
79	00341745	2175	2606	3037	3468	3899	4330	4761	5192	5622	
10080	6053	6484	6915	7346	7777	8207	8638	9069	9500	9931	
81	00350361	0792	1223	1654	2085	2515	2946	3377	3808	4239	
82	4669	5100	5531	5962	6392	6823	7254	7685	8115	8546	
[illegible]	8977	9407	9838	$\bar{0}269$	0700	1130	1561	1992	2422	2853	
84	00363284	3714	4145	4576	5006	5437	5868	6298	6729	7160	
85	7590	8021	8452	8882	9313	9743	$\bar{0}174$	0605	1035	1466	
86	00371896	2327	2758	3188	3619	4049	4480	4910	5341	5772	
[illegible]	6202	6633	7063	7494	7924	8355	8785	9216	9646	$\bar{0}077$	
88	00380507	0938	1368	1799	2229	2660	3090	3521	3951	4382	
89	4812	5243	5673	6104	6534	6964	7395	7825	8256	8686	
10090	9117	9547	9977	$\bar{0}408$	0838	1269	1699	2129	2560	2990	
91	00393421	3851	4281	4712	5142	5572	6003	6433	6864	7294	430
92	7724	8155	8585	9015	9445	9876	$\bar{0}306$	0736	1167	1597	
93	00402027	2458	2888	3318	3748	4179	4609	5039	5470	5900	
94	6330	6760	7191	7621	8051	8481	8911	9342	9772	$\bar{0}202$	
95	00410632	1063	1493	1923	2353	2783	3213	3644	4074	4504	
96	4934	5364	5795	6225	6655	7085	7515	7945	8375	8806	
97	9236	9666	$\bar{0}096$	0526	0956	1386	1816	2246	2676	3107	
98	00423537	3967	4397	4827	5257	5687	6117	6547	6977	7407	
99	7837	8267	[illegible]	9127	9557	9987	$\bar{0}417$	0847	1277	1707	
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Pro.	432
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2	86
3	130
4	173
5	216
6	259
7	302
8	346
9	389

Pro.	431
1	43
2	86
3	129
4	172
5	216
6	259
7	302
8	345
9	388

Pts.	430
1	43
2	86
3	129
4	172
5	215
6	258
7	301
8	344
9	387

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10100	00432137	2567	2997	3427	3857	4287	4717	5147	5577	6007		
01	6437	6867	7297	7727	8157	8587	9017	9447	9877	$\bar{0}$307	430	430
02	00440736	1166	1596	2026	2456	[illegible]	3316	3746	4176	4605		1 43
03	5035	5465	5895	6325	6755	7185	7614	8044	8474	[illegible]		2 86
04	9334	9764	$\bar{0}$193	0623	1053	1483	1913	2342	2772	3202		3 129
												4 172
05	00453632	4062	4491	4921	5351	5781	6210	6640	7070	7500		5 215
06	7929	8359	8789	9219	9648	$\bar{0}$078	0508	0937	1367	1797		6 258
07	00462227	2656	3086	3516	3945	4375	4805	5234	5664	6094		7 301
08	6523	6953	7383	7812	8242	8672	9101	9531	9960	$\bar{0}$390		[illegible]
09	00470820	1249	1679	2108	2538	2968	3397	3827	4256	4686		9 387
10110	5116	5545	5975	6404	6834	7263	7693	8122	8552	8982		
11	9411	9841	$\bar{0}$270	0700	1129	1559	1988	2418	2847	3277		
12	00483706	4136	4565	4995	5424	5853	6283	6712	7142	7571		
13	8001	8430	8860	9289	9718	$\bar{0}$148	0577	1007	1436	1866		
14	00492295	2724	3154	3583	4012	4442	4871	5301	5730	6159		
15	6589	7018	7447	7877	8306	8735	9165	9594	$\bar{0}$023	0453		
16	00500882	1311	1741	2170	2599	3029	3458	3887	4316	4746		
17	5175	5604	6034	6463	6892	7321	7751	8180	8609	9038		
18	9468	9897	$\bar{0}$326	0755	1184	1614	2043	2472	2901	3330		
19	00513760	4189	4618	5047	5476	5905	6335	6764	7193	7622		
10120	8051	8480	8910	9339	9768	$\bar{0}$197	0626	1055	1484	1913		
21	00522342	2772	3201	3630	4059	4488	4917	5346	5775	6204	429	429
22	6633	7062	7491	7920	8350	8779	[illegible]	9637	$\bar{0}$066	0495		1 43
23	00530924	1353	1782	2211	2640	3069	3498	3927	4356	4785		2 86
24	5214	5643	6072	6501	6930	7358	7787	8216	[illegible]	9074		3 129
												4 172
25	9503	9932	$\bar{0}$361	0790	1219	1648	2077	2506	2935	[illegible]		5 215
26	00543792	4221	4650	5079	5508	5937	6366	6794	7223	7652		6 257
27	8081	8510	8939	9368	9796	$\bar{0}$225	0654	1083	1512	1940		7 300
28	00552369	2798	3227	3656	4084	4513	4942	5371	5800	6228		8 343
29	6657	7086	7515	7943	8372	8801	9230	9658	$\bar{0}$087	0516		9 386
10130	00560945	1373	1802	2231	2659	[illegible]	3517	3945	4374	4803		
31	5232	5660	6089	6518	6946	7375	7804	8232	8661	9089		
32	9518	9947	$\bar{0}$375	0804	1233	1661	2090	2518	[illegible]	[illegible]		
33	00573804	4233	4661	5090	5519	5947	6376	6804	7233	7661		
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35	00582375	2804	3232	3661	[illegible]	4518	4946	5375	5803	6232		
36	6660	7089	7517	7946	8374	8802	9231	9659	$\bar{0}$088	0516		
37	00590945	1373	1801	2230	2658	3087	3515	3944	4372	[illegible]		
38	5229	5657	6085	6514	6942	7371	7799	8227	8656	[illegible]		
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41	8078	8507	8935	9363	9791	$\bar{0}$219	0648	1076	1504	1932		
42	00612361	2789	3217	3645	4073	4502	4930	5358	5786	6214	428	428
43	6643	7071	7499	7927	8355	8783	9212	9640	$\bar{0}$068	0496		1 43
44	00620924	1352	1780	2208	2637	3065	3493	3921	4349	4777		2 86
45	5205	5633	[illegible]	6489	6917	7346	7774	8202	8630	[illegible]		3 128
46	9486	9914	$\bar{0}$342	0770	1198	1626	2054	[illegible]	[illegible]	3338		4 171
47	00633706	4194	4622	5050	5478	5906	6334	6762	7190	7618		5 214
48	8046	8474	8902	9330	9758	$\bar{0}$186	0614	1041	[illegible]	1897		6 257
49	00642325	2753	3181	3609	4037	4465	4893	5321	5748	6176		7 300
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52	5161	5589	6016	6444	6872	7300	7728	8155	[illegible]	9011		1 43
53	9439	9866	$\bar{0}$294	0722	1150	1577	2005	2433	2860	3288		2 85
54	00663716	4144	4571	4999	5427	5854	6282	6710	7137	7565		3 128 4 171
55	7993	8420	[illegible]	9276	9703	$\bar{0}$131	0559	[illegible]	1414	1842		5 214
56	00672269	2697	3124	3552	3980	4407	4835	5262	5690	6118		6 256
57	6545	6973	7400	7828	8256	[illegible]	9111	9538	[illegible]	$\bar{0}$393		7 299
58	00680821	1248	1676	2103	2531	2958	[illegible]	3814	4241	[illegible]		8 342
59	5096	5524	5951	6379	6806	7233	7661	8088	8516	[illegible]		9 384
10160	9371	9798	$\bar{0}$226	0653	1081	1508	1935	2363	2790	3218		
61	00693645	4073	4500	[illegible]	5355	5782	6210	6637	7064	7492		
62	7919	8346	8774	9201	9629	$\bar{0}$056	[illegible]	0911	1338	1765		
63	00702193	2620	3047	3475	3902	4329	4756	5184	5611	6038		
64	6466	6893	7320	7747	8175	8602	9029	9457	[illegible]	$\bar{0}$311		
65	00710738	1166	1593	2020	2447	2874	3302	3729	4156	4583		
66	5011	5438	5865	6292	6719	7146	7574	8001	8428	8855		
67	9282	9710	$\bar{0}$137	0564	0991	1418	1845	2272	2700	3127		
68	00723554	3981	4408	4835	5262	5689	6116	6543	6971	7398		
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0170	00732095	2522	2949	3376	3803	[illegible]	4657	5084	5511	5938		
71	6365	6792	7219	7646	8073	8500	8927	9354	9781	$\bar{0}$208		
72	00740635	1062	1489	1916	2343	2770	3197	3624	4051	4478	426	426
73	4904	5331	5758	6185	6612	7039	7466	7893	8320	8746		1 43
74	9173	9600	$\bar{0}$027	0454	0881	1308	1734	2161	2588	3015		2 85 3 128
75	00753442	3869	4295	4722	5149	5576	6003	6429	6856	7283		4 170
76	7710	8137	8563	8990	9417	9844	$\bar{0}$270	0697	1124	1551		5 213
77	00761977	2404	2831	3258	3684	4111	4538	4965	5391	5818		6 256
78	6245	6671	7098	7525	7951	8378	8805	9231	9658	$\bar{0}$085		7 298 8 341
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81	9044	9470	9897	$\bar{0}$323	0750	1177	1603	2030	2456	2883		
82	00783309	3736	4162	4589	5015	5442	5868	6295	6721	7148		
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88	8894	9320	9746	$\bar{0}$172	0599	1025	1451	1877	2304	2730		
89	00813156	3582	[illegible]	4435	[illegible]	5287	5714	6140	6566	6992		
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91	00821680	2106	2532	2959	3385	3811	4237	4663	5089	5515		
92	5941	6368	6794	7220	7646	8072	8498	8924	9350	9776	425	425
93	00830202	0628	1055	1481	1907	2333	2759	3185	3611	4037		1 43
94	4463	[illegible]	5315	5741	6167	6593	7019	7445	7871	8297		2 85 3 128
95	8723	9149	9575	$\bar{0}$001	0427	0853	1279	1705	2131	2557		4 170
96	00842983	[illegible]	3835	4260	4686	5112	5538	5964	6390	6816		5 213
97	7242	7668	[illegible]	8520	8946	9371	9797	$\bar{0}$223	0649	1075		6 255
98	00851501	1927	[illegible]	2778	3204	3630	4056	[illegible]	4908	5333		7 298 8 340
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02	8532	8958	9383	9809	$\bar{0}$235	0660	1086	1512	1937	2363	
03	00872789	3214	3640	4066	4491	4917	5343	5768	6194	6619	
04	7045	7471	7896	8322	8747	9173	9599	$\bar{0}$024	0450	0875	
05	00881301	1726	2152	2578	3003	3429	3854	4280	4705	5131	
06	5556	5982	6407	6833	7258	7684	8109	8535	8960	9386	
07	9811	$\bar{0}$237	0662	1088	1513	1939	2364	2790	3215	3641	
08	00894066	4492	4917	5342	5768	6193	6619	7044	7470	7895	
09	8320	8746	9171	9597	$\bar{0}$022	0447	0873	1298	1723	2149	
10210	00902574	2999	3425	3850	4276	4701	5126	5551	5977	6402	
11	6828	7253	7678	8103	8529	8954	9379	9804	$\bar{0}$230	0655	
12	00911081	1506	1931	2356	2782	3207	3632	4057	4485	4908	
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16	8088	8513	8939	9364	9789	$\bar{0}$214	0639	1064	1489	1914	
17	00932339	2764	3189	3614	4040	4465	4890	5315	5740	6165	
18	6590	7015	7440	7865	8290	8715	9140	9565	9990	$\bar{0}$415	
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23	7836	8261	8686	9111	9535	9960	$\bar{0}$385	0810	1234	1659	
24	00962084	2509	2934	3359	3783	4208	4633	5058	5482	5907	
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27	4826	5251	5675	6100	6524	6949	7373	7798	8223	8648	
28	9072	9497	9921	$\bar{0}$346	0770	1195	1620	2045	2469	2894	
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33	01000297	0722	1146	1571	1995	2420	2844	3269	3693	4117	
34	4541	4966	5390	5815	6239	6663	7087	7512	7936	8361	
35	8785	9209	9633	$\bar{0}$058	0482	0907	1331	1755	2179	2604	
36	01013028	3452	3876	4301	4725	5149	5573	5998	6422	[illegible]	
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38	01021512	1937	2361	2785	3209	3634	4058	4482	4906	5330	
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41	01034237	4661	5085	5509	5933	6357	6781	7205	7629	8053	
42	8477	8901	9325	9749	$\bar{0}$173	0597	1021	1445	1869	2293	424
43	01042717	3141	3565	3989	4413	4837	5261	5685	6109	6533	
44	6957	7381	7805	8229	8653	9077	9501	9925	$\bar{0}$348	0772	
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46	5435	5859	6283	6707	7131	7555	7978	8492	[illegible]	9250	
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57	01102036	2459	2882	3306	3729	4153	4576	5000	5423	5846	
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61	8969	9392	9815	0̄238	0662	1085	1508	1931	2355	2778	
62	01123201	3624	4047	4470	4894	5317	5740	6163	6587	7010	
63	7433	7856	8279	8702	9126	9549	9972	0̄395	0818	1241	
64	01131664	2087	2511	2934	3357	3780	4203	4626	5049	5472	
65	5895	6318	6742	7165	7588	8011	8434	8857	9280	9703	
66	01140126	0549	0972	1395	1818	2241	2664	3087	3510	3933	
67	4356	4779	5202	5625	6048	6471	6894	7317	7740	8163	
68	8586	9009	9432	9855	0̄278	0701	1124	1547	1970	2393	
69	01152815	3238	3661	4084	4507	4930	5353	5776	6199	6622	
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71	01161273	1696	2119	2542	2964	3387	3810	4233	4655	5078	422
72	5501	5924	6347	6770	7192	7615	8038	8461	8883	9306	
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74	01173956	4379	4802	5225	5647	6070	6492	6915	7338	7761	
75	8183	8606	9028	9451	9874	0̄297	0719	1142	1564	1987	
76	01182410	2833	3255	3678	4100	4523	4945	3568	5790	6213	
77	6636	7059	7481	7904	8326	8749	9171	9594	0̄016	0439	
78	01190861	1284	1706	2129	2552	2975	3397	3820	4242	4665	
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81	01203536	3959	4381	4804	5226	5648	6070	6493	6915	7338	
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83	01211984	2406	2828	3251	3673	4096	4518	4940	5362	5785	
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85	01220430	0852	1274	1697	2119	2541	2963	3386	3808	4230	
86	4652	5074	5496	5919	6341	6763	7185	7608	8030	8452	
87	8874	9296	9718	0̄141	0563	0985	1407	1829	2251	2674	
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91	5758	6180	6602	7024	7446	7868	8290	8712	9134	9556	
92	9978	0̄400	0822	1244	1666	2088	2510	2932	3353	3775	421
93	01254197	4619	5041	5463	5885	6307	6729	7151	7573	7995	
94	8416	8838	9260	9682	0̄104	0526	0948	1370	1791	2213	
95	01262635	3057	3479	3901	4322	4744	5166	5588	6010	6432	
96	6853	7275	7697	8119	8541	8962	9384	9806	0̄228	0649	
97	01271071	1493	1915	2336	2758	3180	3602	4023	4445	4867	
98	5289	5710	6132	6554	6976	7397	7819	8241	8662	9084	
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03	6370	6792	7213	7635	[illegible]	8478	8899	9321	9742	0̄164	
04	01300585	1006	1428	1849	2271	2692	3114	3535	3957	4378	
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06	9014	9435	9857	0̄278	0699	1121	1542	1964	2385	2806	
07	01313228	3649	4070	4492	4913	5334	5756	6177	6598	7020	
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09	01321654	2075	2497	2918	3339	3760	4182	4603	5024	5445	
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11	01330079	0500	0921	1342	1763	2185	2606	3027	[illegible]	3869	
12	4290	4712	5133	5554	5975	6396	6817	7238	7659	[illegible]	
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14	01342713	3134	3555	3976	4397	4818	5239	5660	6081	[illegible]	
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17	5343	5764	6185	6606	7027	7448	7869	[illegible]	8711	9131	
18	9552	9973	0̄394	0815	1236	1657	2078	2499	2920	[illegible]	
19	01363761	4182	4603	5024	5445	5866	6286	6707	7128	7549	
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21	01372178	2599	3019	3440	3861	[illegible]	4702	5123	5544	5965	421
22	6386	6806	7227	7648	8068	8489	8910	9331	9751	0̄172	
23	01380593	1013	1434	1855	2276	2696	3117	3538	3958	4379	
24	4800	5220	5641	6062	6482	6903	7324	7744	8165	8585	
25	9006	9427	9847	0̄268	0688	1109	1530	1950	2371	2791	
26	01393212	3633	4053	4474	4894	5315	5735	6156	6577	6997	
27	7418	7838	8259	8679	9100	9520	9941	0̄361	0782	1202	
28	01401623	2043	2464	2884	3305	3725	4146	4566	4987	5407	
29	5828	6248	[illegible]	7089	7509	7930	8350	8771	9191	9612	
10330	01410032	0453	[illegible]	1293	1714	2134	2555	2975	3395	[illegible]	
31	4236	4656	5077	5497	5918	6338	6758	7179	7599	8019	
32	8440	[illegible]	9280	9701	0̄121	0541	0962	1382	1802	2223	
33	01422643	3063	3484	3904	4324	4744	5165	5585	[illegible]	6425	
34	6846	7266	7686	8106	8527	8947	9367	9787	0̄208	0628	
35	01431048	[illegible]	1889	2309	2729	3149	3569	[illegible]	4410	4830	
36	5250	5670	6090	6511	6931	7351	7771	[illegible]	8611	9032	
37	9452	[illegible]	0̄292	0712	1132	1552	1972	2393	2813	3233	
[illegible]	01443653	4073	[illegible]	4913	5333	5753	6173	6593	7013	7433	
39	7854	8274	[illegible]	9114	9534	9954	0̄374	0794	1214	1634	
10340	01452054	[illegible]	2894	3314	3734	4154	4574	4994	5414	5834	
41	6254	6674	[illegible]	7514	7934	8354	8774	9193	9613	0̄033	
42	01460453	0873	1293	1713	2133	2553	2973	3393	3813	[illegible]	420
[illegible]	[illegible]	5072	5492	5912	6332	6752	7172	7592	8012	8431	
44	[illegible]	9271	9691	0̄111	0530	0950	1370	1790	2210	2630	
45	01473049	3469	3889	4309	4729	5149	5568	5988	6408	6828	
46	7247	7667	8087	[illegible]	8926	9346	9766	0̄186	0605	1025	
47	01481445	1865	2284	[illegible]	3124	3544	3963	4383	4803	5222	
48	5642	6062	6481	6901	7321	7740	8160	8580	8999	9419	
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51	8231	8651	9070	9490	9909	0̄329	0748	1168	1587	2007	419	419
52	01502426	2846	3265	3685	4104	4524	4943	5363	5782	6202		1 42
53	6621	7041	7460	7880	8299	8719	9138	9558	9977	0̄397		2 84
54	01510816	1236	1655	2074	2494	2913	3333	3752	4172	4591		3 126
55	5010	5430	5849	6269	6688	7107	7527	7946	8366	8785		4 168
56	9204	9624	0̄043	0462	0882	1301	1720	2140	2559	2978		5 209
57	01523398	3817	4236	4656	5075	5494	5913	6333	6752	7171		6 251
58	7591	8010	8429	8848	9268	9687	0̄106	0525	0945	1364		7 293
59	01531783	2203	2622	3041	3460	3879	4299	4718	5137	5556		8 335
10360	5976	6395	6814	7233	7652	8071	8491	8910	9329	9748		9 377
61	01540167	0587	1006	1425	1844	2263	2682	3101	3520	3940		
62	4359	4778	5197	5616	6035	6454	6873	7293	7712	8131		
63	8550	8969	9388	9807	0̄226	0645	1064	1483	1902	2321		
64	01552740	3159	3578	3997	4416	4836	5255	5674	6093	6512		
65	6931	7350	7769	8188	8607	9026	9445	9864	0̄283	0702		
66	01561120	1539	1958	2377	2796	3215	3634	4053	4472	4891		
67	5310	5729	6148	6567	6985	7404	7823	8242	8661	9080		
68	9499	9918	0̄337	0755	1174	1593	2012	2431	2850	3269		
69	01573688	4106	4525	4944	5363	5782	6200	6619	7038	7457		
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71	01582063	2482	2901	3320	3738	4157	4576	4995	5413	5832	418	418
72	6251	6670	7088	7507	7926	8344	8763	9182	9600	0̄019		1 42
73	01590438	0857	1275	1694	2113	2531	2950	3369	3787	4206		2 84
74	4625	5043	5462	5880	6299	6718	7136	7555	7973	8392		3 125
75	8811	9229	9648	0̄066	0485	0903	1322	1741	2159	2578		4 167
76	01602996	3415	3833	4252	4670	5089	5508	5926	6345	6763		5 209
77	7182	7600	8019	8437	8856	9274	9693	0̄111	0530	0948		6 251
78	01611367	1785	2204	2622	3041	3459	3877	4296	4714	5133		7 293
79	5551	5970	6388	6806	7225	7643	8062	8480	8899	9317		8 334
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81	01623919	4337	4756	5174	5592	6011	6429	6847	7266	7684		
82	8102	8521	8939	9357	9776	0̄194	0612	1031	1449	1867		
83	01632285	2704	3122	3540	3959	4377	4795	5213	5632	6050		
84	6468	6886	7304	7723	8141	8559	8977	9395	9814	0̄232		
85	01640650	1068	1487	1905	2323	2741	3159	3577	3996	4414		
86	4832	5250	5668	6086	6504	6922	7341	7759	8177	8595		
87	9013	9431	9849	0̄268	0686	1104	1522	1940	2358	2776		
88	01653194	3612	4030	4448	4866	5284	5702	6120	6539	6957		
89	7375	7793	8211	8629	9047	9465	9883	0̄301	0719	1137		
10390	01661555	1973	2391	2809	3227	3645	4063	4481	4899	5317		
91	5735	6152	6570	6988	7406	7824	8242	8660	9078	9496		
92	9914	0̄332	0750	1168	1585	2003	2421	2839	3257	3675	417	417
93	01674093	4511	4928	5346	5764	6182	6600	7018	7436	7853		1 42
94	8271	8689	9107	9525	9942	0̄360	0778	1196	1614	2031		2 83
95	01682449	2867	3285	3703	4121	4538	4956	5374	5792	6209		3 125; 4 167
96	6627	7045	7463	7880	8298	8716	9134	9551	9969	0̄387		5 208
97	01690804	1222	1640	2058	2475	2893	3311	3728	4146	4563		6 250
98	4981	5399	5817	6234	6652	7070	7487	7905	8323	8740		7 292; 8 334
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01	7510	7927	8345	8762	9180	9597	$\overline{0}015$	0432	0850	1267	418	418
02	01711685	2102	2520	2937	3355	3772	4190	4607	5025	5442		1 42
03	5860	6277	6695	7112	7530	7947	8365	8782	9199	9617		2 84
04	01720034	0452	0869	1287	1704	2121	2539	2956	3374	3791		3 125 4 167
05	4208	4626	5043	5461	5878	6295	6713	7130	7547	7965		5 209
06	8382	8800	9217	9634	$\overline{0}052$	0469	0886	1304	1721	2138		6 251
07	01732556	2973	3390	3807	4225	4642	5059	5477	5894	6311		7 293
08	6728	7146	7563	7980	8397	8815	9232	9649	$\overline{0}066$	0484		8 334
09	01740901	1318	1735	2152	2570	2987	3404	3821	4238	4656		9 376
10410	5073	5490	5907	6324	6742	7159	7576	7993	8410	8827		
11	9245	9662	$\overline{0}079$	0496	0913	1330	1747	2165	2582	2999		
12	01753416	3833	4250	4667	5084	5501	5919	6336	6753	7170		
13	7587	8004	8421	8838	9255	9672	$\overline{0}089$	0506	0923	1340		
14	01761757	2174	2591	3008	3425	3842	4259	4676	5093	5510		
15	5927	6344	6761	7178	7595	8012	8429	8846	9263	9680		
16	01770097	0514	0931	1348	1765	2182	2599	3016	3433	3850		
17	4266	4683	5100	5517	5934	6351	6768	7185	7602	8019		
18	8435	8852	9269	9686	$\overline{0}103$	0520	0936	1353	1770	2187		
19	01782604	3021	3437	3854	4271	4688	5105	5521	5938	6355		
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21	01790940	1356	1773	2190	2607	3023	3440	3857	4273	4690	417	417
22	5107	5524	5940	6357	6774	7190	7607	8024	8440	8857		1 42
23	9274	9690	$\overline{0}107$	0524	0940	1357	1774	2190	2607	3024		2 83
24	01803440	3857	4274	4690	5107	5523	5940	6357	6773	7190		3 125 4 167
25	7606	8023	8440	8856	9273	9689	$\overline{0}106$	0522	0939	1356		5 209
26	01811772	2189	2605	3022	3438	3855	4271	4688	5104	5521		6 250
27	5937	6354	6770	7187	7603	8020	8436	8853	9269	9686		7 292
28	01820102	0519	0935	1352	1768	2185	2601	3017	3434	3850		8 334 9 375
29	4267	4683	5100	5516	5932	6349	6765	7182	7598	8014		
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31	01832595	3011	3427	3844	4260	4676	5092	5509	5925	6342		
32	6758	7174	7590	8007	8423	8839	9256	9672	$\overline{0}088$	0505		
33	01840921	1337	1753	2169	2586	3002	3418	3834	4251	4667		
34	5083	5499	5916	6332	6748	7164	7580	7997	8413	8829		
35	9245	9662	$\overline{0}078$	0494	0910	1326	1742	2159	2575	2991		
36	01853407	3823	4239	4655	5072	5488	5904	6320	6736	7152		
37	7568	7984	8401	8817	9233	9649	$\overline{0}065$	0481	0897	1313		
38	01861729	2145	2561	2977	3393	3809	4226	4642	5058	5474		
39	5890	6306	6722	7138	7554	7970	8386	8802	9218	9634		
10440	01870050	0466	0882	1298	1714	2130	2546	2962	3378	3794		
41	4210	4626	5041	5457	5873	6289	6705	7121	7537	7953		
42	8369	8785	9201	9617	$\overline{0}033$	0448	0864	1280	1696	2112	416	416
43	01882528	2944	3360	3775	4191	4607	5023	5439	5855	6270		1 42
44	6686	7102	7518	7934	8350	8765	9181	9597	$\overline{0}013$	0429		2 83 3 125
45	01890844	1260	1676	2092	2508	2923	3339	3755	4171	4586		4 166
46	5002	5418	5834	6249	6665	7081	7497	7912	8328	8744		5 208
47	9159	9575	9991	$\overline{0}407$	0822	1238	1654	2069	2485	2901		6 250
48	01903316	3732	4148	4563	4979	5395	5810	6226	6642	7057		7 291 8 333
49	7473	7889	8304	8720	9135	9551	9967	$\overline{0}382$	0798	1213		9 374
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52	9940	$\overline{0}$356	0771	1187	1602	2018	2433	2849	3264	3680		1 41
53	01924095	4510	4926	5341	5757	6172	6588	7003	7419	7834		2 83
54	8250	8665	[illegible]	9496	9911	$\overline{0}$327	0742	1157	1573	1988		3 124
55	01932404	2819	3235	3650	4065	4481	4896	5311	5727	6142		4 166
56	6557	6973	7388	7804	8219	8634	9050	9465	9880	$\overline{0}$296		5 207
57	01940711	1126	1541	1957	2372	2787	3203	3618	4033	4449		6 249
58	4864	5279	5694	6109	6525	6940	7355	7770	8186	8601		7 290
59	9016	0432	9847	$\overline{0}$262	0677	1092	1508	1923	2338	2753		8 332 9 373
10460	01953168	3584	3999	4414	4829	5244	5659	6075	6490	6905		
61	7320	7735	8150	8566	8981	9396	9811	$\overline{0}$226	0641	1056		
62	01961472	1887	2302	2717	3132	3547	3962	4377	4792	5208		
[illegible]	5623	6038	6453	6868	7283	7698	8113	8528	8943	9358		
64	9773	$\overline{0}$188	0603	1018	1433	1848	2263	2678	3093	3508		
65	01973923	4338	4753	5168	5583	5998	6413	6828	7243	7658		
66	8073	8488	8903	9318	9733	$\overline{0}$148	0563	0978	1393	1807		
67	01982222	2637	3052	3467	3882	4297	4712	5127	5542	5957		
68	6371	6786	7201	7616	8031	8446	8861	9275	9690	$\overline{0}$105		
69	01990520	0935	1350	1764	2179	2594	3009	3424	3838	4253		
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71	8816	9231	9645	$\overline{0}$060	0475	0890	1304	1719	2134	2549	414	414
72	02002963	3378	3793	4207	4622	5037	5452	5866	6281	6696		1 41
73	7110	7525	7940	8354	8769	9184	9598	$\overline{0}$013	0428	0842		2 83
74	02011257	1672	2086	2501	2916	3330	3745	4159	4574	4989		3 124 4 166
75	5403	5818	6232	6647	7062	7476	7891	8305	8720	9135		5 207
76	9549	9964	$\overline{0}$378	0793	1207	1622	2036	2451	2865	3280		6 248
77	02023694	4109	4523	4938	5352	5767	6181	6596	7010	7425		7 290
78	7839	8254	8668	9083	9497	9912	$\overline{0}$326	0741	1155	1570		8 331
79	02031984	2399	2813	3227	3642	4056	4471	4885	5299	5714		9 373
10480	6128	6543	6957	7372	7786	8200	8615	9029	9444	9858		
81	02040272	0687	1101	1515	1930	2344	2758	3173	3587	4001		
82	4416	4830	5244	5658	6073	6487	6901	7316	7730	8144		
83	8559	8973	9387	9801	$\overline{0}$216	0630	1044	1458	1873	2287		
84	02052701	3116	3530	3944	4358	4772	5187	5601	6015	6429		
85	6843	7258	7672	8086	8500	8915	9329	9743	$\overline{0}$157	0571		
86	02060985	1400	1814	2228	2642	3056	3470	3884	4299	4713		
87	5127	5541	5955	6369	6783	7197	7612	8026	8440	8854		
88	9268	9682	$\overline{0}$096	0510	0924	1338	1752	2166	2581	2995		
89	02073409	3823	4237	4651	5065	5479	5893	6307	6721	7135		
0490	7549	7963	8377	8791	9205	9619	$\overline{0}$033	0447	0861	1275		
91	02081689	2103	2517	2931	3345	3759	4173	4587	5000	5414		
92	5828	6242	6656	7070	7484	7898	8312	8726	9140	9553	413	413
93	9967	$\overline{0}$381	0795	1209	1623	2037	2451	2864	3278	3692		1 41
94	02094106	4520	4934	5347	5761	6175	6589	7003	7417	7831		2 83 3 124
95	8244	8658	9072	9486	9900	$\overline{0}$313	0727	1141	1555	1969		4 165
96	02102382	2796	3210	3624	4037	4451	4865	5279	5692	6106		5 206
97	6520	6934	7347	7761	8175	8588	9002	9416	9829	$\overline{0}$243		6 248 7 289
98	02110657	1071	1484	1898	2312	2725	3139	3553	3966	4380		8 330
99	4794	5207	5621	6035	6448	6862	7275	7689	8103	8516		9 372
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01	02123066	3479	3893	4307	4720	5134	5547	5961	6374	6788	414
02	7201	7615	8028	8442	8855	9269	9682	$\bar{0}$096	0509	0923	
03	02131337	1750	2164	2577	2991	3404	3817	4231	4644	5058	
04	5471	5885	6298	6712	7125	7539	7952	8365	8779	9192	
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06	02143740	4153	4566	4980	5393	5807	[illegible]	6633	7047	7460	
07	7873	8287	8700	9113	9526	9940	$\bar{0}$353	0766	1180	1593	
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10510	02160272	[illegible]	1098	1511	1924	2338	2751	3164	3577	3990	
11	4404	4817	5230	5643	6056	6469	6882	7296	7709	8122	
12	8535	8948	9361	9775	$\bar{0}$188	0601	1014	1427	1840	2253	
13	02172666	3080	3493	3906	4319	4732	5145	5558	5971	6384	
14	6797	7210	7623	8036	8450	8863	9276	9689	$\bar{0}$102	0515	
15	02180928	1341	1754	2167	2580	2993	3406	3819	4232	[illegible]	
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17	9187	9600	$\bar{0}$013	0426	0839	1252	1665	2078	2491	[illegible]	
18	02193317	3730	4142	4555	4968	5381	5794	6207	[illegible]	7033	
19	7446	7858	8271	8684	9097	9510	9923	$\bar{0}$336	0748	1161	
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21	5702	6115	6528	6941	7353	7766	8179	8592	9004	9417	413
22	9830	$\bar{0}$242	0655	1068	1481	1893	2306	2719	3132	3544	
23	02213957	4370	4782	5195	5608	6021	6433	6846	7259	7671	
24	8084	8497	8909	9322	9735	$\bar{0}$147	0560	0973	1385	1798	
25	02222210	2623	[illegible]	3448	3861	4273	4686	5099	5511	5924	
26	6337	6749	7162	7574	7987	8400	8812	9225	9637	$\bar{0}$050	
27	02230462	0875	1288	1700	2113	2525	2938	3350	3763	4175	
28	4588	5000	5413	5825	6238	6650	7063	7475	7888	8300	
29	8713	9125	9538	9950	$\bar{0}$363	0775	1188	1600	2012	2425	
10530	02242837	3250	3662	4074	4487	4899	5312	5724	6137	6549	
31	6961	7374	7786	8199	8611	9023	9436	9848	$\bar{0}$261	0673	
32	02251085	1497	1910	2322	2735	3147	3559	3972	4384	4796	
33	5208	5621	6033	6445	6858	7270	7682	8095	8507	8919	
34	9331	9744	$\bar{0}$156	0568	0981	1393	1805	2217	2630	3042	
35	02263454	3866	4279	4691	5103	5515	5927	6340	6752	7164	
36	7576	7988	8401	8813	9225	9637	$\bar{0}$049	0462	0874	1286	
37	02271698	2110	2522	2935	3347	3759	4171	4583	4995	5407	
38	5819	6231	6644	7056	7468	7880	8292	8704	9116	9528	
39	9940	$\bar{0}$353	0765	1177	1589	2001	2413	2825	3237	3649	
10540	02284061	4473	4885	5297	5709	6121	6533	6945	7357	7769	
41	8181	8593	9005	9417	9829	$\bar{0}$241	0653	1065	1477	1889	
42	02292301	2713	3125	3537	3949	4361	4773	5185	5597	6009	412
43	6421	6833	7245	7656	8068	[illegible]	8892	9304	9716	$\bar{0}$128	
44	02300540	0952	1364	1775	2187	2599	3011	3423	3835	4247	
45	4658	5070	5482	5894	6306	6718	7130	7541	7953	8365	
46	8777	9189	9600	$\bar{0}$012	0424	0836	1248	1659	2071	2483	
47	02312894	3306	3718	4130	4542	4954	5365	5777	6189	6600	
48	7012	7423	7835	8247	8659	9071	9482	9894	$\bar{0}$306	0718	
49	02321124	1541	1953	2364	2776	3188	3599	4011	4423	4834	
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52	02333478	3890	4301	4713	5124	5536	5948	6359	6771	7182		1 41
53	7594	8005	8417	8829	9240	9652	0063	0475	0886	1298		2 82
54	02341709	2121	2532	2944	3355	3767	4178	4590	5001	5412		3 123 4 164
55	5824	6235	6647	7058	7470	7881	8292	8704	9115	9527		5 205
56	9938	0350	0761	1172	1584	1995	2407	2818	3229	3641		6 247
57	02354052	4464	4875	5286	5698	6109	6520	6932	7343	7755		7 288
58	8166	8577	8989	9400	9811	0223	0634	1045	1456	1868		8 329 9 370
59	02362279	2690	3102	3513	3924	4336	4747	5158	5569	5981		
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61	02370504	0916	1327	1738	2149	2560	2972	3383	3794	4205		
62	4616	5028	5439	5850	6261	6672	7083	7495	7906	8317		
63	8728	9139	9550	9961	0373	0784	1195	1606	2017	2428		
64	02382839	3250	3661	4073	4484	4895	5306	5717	6128	6539		
65	6950	7361	7772	8183	8594	9005	9416	9828	0239	0650		
66	02391061	1472	1883	2294	2705	3116	3527	3938	4349	4760		
67	5171	5582	5993	6404	6815	7226	7637	8048	8459	8870		
68	9281	9692	0103	0514	0924	1335	1746	2157	2568	2979		
69	02403390	3801	4212	4623	5033	5444	5855	6266	6677	7088		
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71	02411607	2018	2429	2840	3251	3662	4072	4483	4894	5305		
72	5715	6126	6537	6948	7359	7769	8180	8591	9002	9413		
73	9823	0234	0645	1056	1466	1877	2288	2699	3109	3520	410	410
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75	8038	8448	8859	9270	9680	0091	0502	0912	1323	1734		3 123
76	02432144	2555	2966	3376	3787	4197	4608	5019	5429	5840		4 164
77	6250	6661	7072	7482	7893	8303	8714	9125	9535	9946		5 205 6 246
78	02440356	0767	1178	1588	1999	2409	2820	3230	3641	4051		7 287
79	4462	4872	5283	5693	6104	6514	6925	7335	7746	8156		8 328
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81	02452671	3082	3492	3903	4313	4724	5134	5545	5955	6365		
82	6776	7186	7597	8007	8417	8828	9238	9649	0059	0469		
83	02460880	1290	1700	2111	2521	2932	3342	3752	4163	4573		
84	4983	5394	5804	6214	6624	7035	7445	7855	8266	8676		
85	9086	9497	9907	0317	0727	1138	1548	1958	2369	2779		
86	02473189	3599	4010	4420	4830	5240	5651	6061	6471	6881		
87	7291	7702	8112	8522	8932	9342	9753	0163	0573	0933		
88	02481393	1804	2214	2624	3034	3444	3854	4265	4675	5085		
89	5495	5905	6315	6725	7135	7546	7956	8366	8776	9186		
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91	02493697	4107	4517	4927	5337	5747	6157	6567	6977	7387		
92	7797	8207	8617	9027	9437	9847	0257	0667	1077	1487	409	409
93	02501897	2307	2717	3127	3537	3947	4357	4767	5177	5587		1 41
94	5997	6407	6817	7227	7637	8047	8457	8866	9276	9686		2 82
95	02510096	0506	0916	1326	1736	2146	2556	2965	3375	3785		3 123 4 164
96	4195	4605	5015	5425	5835	6245	6654	7064	7474	7884		5 204
97	8293	8703	9113	9523	9933	0343	0752	1162	1572	1982		6 245 7 286
98	02522392	2801	3211	3621	4031	4441	4850	5260	5670	6080		8 327
99	6489	6899	7309	7719	8128	8538	8948	9357	9767	0177		9 368
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02	8780	9190	9599	$\bar{0}$009	0419	0828	1238	1647	2057	2467	
03	02542876	3286	3695	4105	4515	4924	5334	5743	6153	6562	
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07	9257	9666	$\bar{0}$076	0485	0895	1304	1714	2123	2532	2942	
08	02563351	3761	4170	4579	4989	5398	5808	6217	6626	7036	
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11	5631	6041	6450	6859	7269	7678	8087	8497	8906	9315	
12	9724	$\bar{0}$133	0543	0952	1361	1770	2180	2589	2998	3407	
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14	7908	8318	8727	9136	9545	9954	$\bar{0}$363	0773	1182	1591	
15	02592000	2409	2818	3227	3636	4046	4455	4864	5273	5682	
16	6091	6500	6909	7318	7727	8137	8546	8955	9364	9773	
17	02600182	0591	1000	1409	1818	2227	2636	3045	3454	3863	
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21	6541	6950	7359	7768	8177	8585	8994	9403	9812	$\bar{0}$221	409
22	02620630	1039	1448	1856	2265	2674	3083	3492	3901	4309	
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24	8806	9215	9624	$\bar{0}$033	0441	0850	1259	1668	2077	2485	
25	02632894	3303	3712	4120	4529	4938	5346	5755	6164	6573	
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27	02641068	1477	1886	2294	2703	3112	3520	3929	4337	4746	
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32	02661497	1905	2314	2722	3131	3539	3948	4356	4765	5173	
33	5581	5990	6398	6807	7215	7624	8032	8440	8849	9257	
34	9666	$\bar{0}$074	0482	0891	1299	1708	2116	2524	2933	3341	
35	02673749	4158	4566	4975	5383	5791	6200	6608	7016	7425	
36	7833	8241	8650	9058	9466	9874	$\bar{0}$283	0691	1099	1508	
37	02681916	2324	2733	3141	3549	3957	4366	4774	5182	[illegible]	
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52	02743116	3524	3931	4339	4747	5154	5562	5970	6377	6785		1 41
53	7193	7600	8008	8416	8823	9231	9639	0̄046	0454	0862		2 81
54	02751269	1677	2085	2492	2900	3307	3715	4123	4530	4938		3 122 4 163
55	5345	5753	6161	6568	6976	7383	7791	8199	8606	9014		5 203
56	9421	9829	0̄236	0644	1051	1459	1866	2274	2682	3089		6 244
57	02763497	3904	4312	4719	5127	5534	5942	6349	6757	7164		7 285
58	7572	7979	8387	8794	9201	9609	0̄016	0424	0831	1239		8 326 9 366
59	02771646	2054	2461	2869	3276	3683	4091	4498	4906	5313		
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62	02783868	4275	4682	5090	5497	5904	6312	6719	7126	7534		
63	7941	8348	8756	9163	9570	9977	0̄385	0792	1199	1606		
64	02792014	2421	2828	3235	3643	4050	4457	4864	5271	5679		
65	6086	6493	6900	7308	7715	8122	8529	8936	9344	9751		
66	02800158	0565	0972	1379	1787	2194	2601	3008	3415	3822		
67	4230	4637	5044	5451	5858	6265	6672	7079	7487	7894		
68	8301	8708	9115	9522	9929	0̄336	0743	1150	1558	1965		
69	02812372	2779	3186	3593	4000	4407	4814	5221	5628	6035	406	406
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71	02820512	0919	1326	1733	2140	2547	2954	3361	3768	4175		2 81
72	4582	4989	5396	5803	6209	6616	7023	7430	7837	8244		3 122
73	8651	9058	9465	9872	0̄279	0685	1092	1499	1906	2313		4 162 5 203
74	02832720	3127	3534	3940	4347	4754	5161	5568	5975	6382		6 244
75	6788	7195	7602	8009	8416	8823	9229	9636	0̄043	0450		7 284
76	02840857	1263	1670	2077	2484	2891	3297	3704	4111	4518		8 325 9 365
77	4924	5331	5738	6145	6551	6958	7365	7772	8178	8585		
78	8992	9398	9805	0̄212	0618	1025	1432	1839	2245	2652		
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81	02861192	1598	2005	2411	2818	3225	3631	4038	4444	4851		
82	5257	5664	6071	6477	6884	7290	7697	8103	8510	8916		
83	9323	9729	0̄136	0542	0949	1355	1762	2168	2575	2981		
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85	7453	7859	8265	8672	9078	9485	9891	0̄298	0704	1111		
86	02881517	1923	2330	2736	3143	3549	3955	4362	4768	5175		
87	5581	5987	6394	6800	7206	7613	8019	8425	8832	9238		
88	9645	0̄051	0457	0864	1270	1676	2083	2489	2995	3301		
89	02893708	4114	4520	4927	5333	5739	6146	6552	6958	7364		
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91	02901833	2239	2645	3052	3458	3864	4270	4676	5083	5489	405	
92	5895	6301	6707	7114	7520	7926	8332	8738	9144	9550		405
93	9957	0̄363	0769	1175	1581	1987	2394	2800	3206	3612		1 40
94	02914018	4424	4830	5236	5642	6049	6455	6861	7267	7673		2 81 3 121
95	8079	8485	8891	9297	9703	0̄109	0515	0921	1327	1733		4 162
96	02922139	2546	2952	3358	3764	4170	4576	4982	5388	5794		5 202
97	6200	6606	7012	7418	7824	8230	8635	9041	9447	9853		6 243 7 283
98	02930259	0665	1071	1477	1883	2289	2695	3101	3507	3913		8 324
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02	6495	6901	7307	7712	8118	8524	8930	9335	9741	$\bar{0}$147		1 41
03	02950553	0958	1364	1770	2176	2581	2987	3393	3799	4205		2 81 3 122
04	4610	5016	5422	5827	6233	6639	7044	7450	7856	8261		4 162
05	8667	9073	9479	9884	$\bar{0}$290	0696	1101	1507	1913	2318		5 203
06	02962724	3130	3535	3941	4347	4752	5158	5563	5969	6375		6 244
07	6780	7186	7592	7997	8403	8808	9214	9620	$\bar{0}$025	0431		7 284
08	02970836	1242	1647	2053	2458	2864	3270	3675	4081	4486		8 325 9 365
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11	02983002	3407	3813	4218	4624	5029	5435	5840	6246	6651		
12	7056	7462	7867	8273	8678	9084	9489	9894	$\bar{0}$300	0705		
13	02991111	1516	1921	2327	2732	3137	3543	3948	4354	4759		
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15	9218	9623	$\bar{0}$028	0433	0839	1244	1649	2055	2460	2865		
16	03003271	3676	4081	4486	4892	5297	5702	6107	6513	6918		
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18	03011375	1781	2186	2591	2996	3401	3807	4212	4617	5022		
19	5427	5832	6238	6643	7048	7453	7858	8263	8668	9073		
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21	03023529	3935	4340	4745	5150	5555	5960	6365	6770	7175		405
22	7580	7985	8391	8796	9201	9606	$\bar{0}$011	0416	0821	1226	405	1 40
23	03031631	2036	2441	2846	3251	3656	4061	4466	4871	5276		2 81
24	5681	6086	6491	6896	7301	7706	8111	8515	8920	9325		3 121
25	9730	$\bar{0}$135	0540	0945	1350	1755	2160	2565	2970	3374		4 162
26	03043779	4184	4589	4994	5399	5804	6209	6614	7019	7423		5 202 6 243
27	7828	8233	8638	9043	9448	9853	$\bar{0}$257	0662	1067	1472		7 283
28	03051877	2281	2686	3091	3496	3901	4305	4710	5115	5520		8 324
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31	03064020	4424	[illegible]	5234	5638	6043	6448	6852	7257	7662		
32	8066	8471	8876	9281	9685	$\bar{0}$090	0495	0899	1304	1708		
33	03072113	2518	2922	3327	3732	4136	4541	4945	5350	5755		
34	6159	6564	6968	7373	7777	8182	8587	8991	9396	9800		
35	03080205	0610	1014	1419	1823	2228	2632	3037	3441	3846		
36	4250	4655	5059	5464	5868	6273	6677	7082	7486	7891		
37	8295	8700	9104	9509	9913	$\bar{0}$318	0722	1127	1531	1936		
38	03092340	2745	3149	3553	3958	4362	4767	5171	5575	5980		
39	6384	6789	7193	7597	[illegible]	8406	8811	9215	9619	$\bar{0}$024		
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41	4472	4876	[illegible]	5685	6089	6493	6898	7302	7706	8111		
42	8515	8919	9323	9728	$\bar{0}$132	0536	0941	1345	1749	2153	404	404
43	03112558	2962	[illegible]	3771	4175	4579	4983	5387	5792	6196		1 40
44	6600	7004	7408	7813	8217	8621	9025	9429	9834	$\bar{0}$238		2 81 3 121
45	03120642	1046	1450	1855	2259	2663	3067	3471	3875	4280		4 162
46	4684	5088	5492	5896	6300	6704	7109	7513	7917	8321		5 202 6 243
47	8725	9129	9533	9937	$\bar{0}$341	0745	1150	1554	1958	2362		7 283
48	03132766	3170	3574	3978	4382	4786	5190	5594	5998	6402		8 323
49	6806	7210	7614	8018	8422	8826	9230	9634	$\bar{0}$038	0442		9 364
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52	8926	9330	9733	0̄137	0541	0945	1349	1753	2157	2561		1 40
53	03152965	3369	3772	4176	4580	4984	5388	5792	6196	6599		2 81
54	7003	7407	7811	8215	8619	9023	9426	9830	0̄234	0638		3 121 4 162
55	03161042	1445	1849	2253	2657	3061	3464	3868	4272	4676		5 202
56	5080	5483	5887	6291	6695	7098	7502	7906	8310	8713		6 242
57	9117	9521	9924	0̄328	0732	1136	1539	1943	2347	2750		7 283
58	03173154	3558	3961	4365	4769	5173	5576	5980	6384	6787		8 323 9 364
59	7191	7594	7998	8402	8806	9209	9613	0̄016	0420	0824		
0760	03181227	1631	2034	2438	2842	3245	3649	4052	4456	4860		
61	5263	5667	6070	6474	6878	7281	7685	8088	8492	8895		
62	9299	9702	0̄106	0510	0913	1317	1720	2124	2527	2931		
63	03193334	3738	4141	4545	4948	5352	5755	6159	6562	6966		
64	7369	7772	8176	8579	8983	9386	9790	0̄193	0597	1000		
65	03201403	1807	2210	2614	3017	3421	3824	4227	4631	5034		
66	5438	5841	6244	6648	7051	7455	7858	8261	8665	9068		
67	9471	9875	0̄278	0682	1085	1488	1892	2295	2698	3101		
68	03213505	3908	4311	4715	5118	5521	5925	6328	6731	7134		
69	7538	7941	8344	8748	9151	9554	9958	0̄361	0764	1167		
10770	03221570	1974	2377	2780	3183	3587	3990	4393	4796	5199		
71	5603	6006	6409	6812	7215	7619	8022	8425	8828	9231		
72	9635	0̄038	0441	0844	1247	1651	2054	2457	2860	3263	403	403
73	03233666	4069	4472	4875	5279	5682	6085	6488	6891	7294		1 40
74	7697	8100	8503	8906	9310	9713	0̄116	0519	0922	1325		2 81 3 121
75	03241728	2131	2534	2937	3340	3743	4146	4549	4952	5355		4 161
76	5758	6161	6564	6967	7370	7773	8176	8579	8982	9385		5 201
77	9788	0̄191	0594	0997	1400	1803	2206	2609	3012	3415		6 242
78	03253818	4221	4624	5027	5430	5833	6236	6639	7041	7444		7 282 8 322
79	7847	8250	8653	9056	9459	9862	0̄265	0668	1070	1473		9 363
0780	03261876	2279	2682	3085	3488	3891	4293	4696	5099	5502		
81	5905	6308	6710	7113	7516	7919	8322	8724	9127	9530		
82	9933	0̄336	0738	1141	1544	1947	2350	2752	3155	3558		
83	03273961	4363	4766	5169	5572	5974	6377	6780	7183	7585		
84	7988	8391	8793	9196	9599	0̄001	0404	0807	1210	1612		
85	03282015	2418	2820	3223	3626	4028	4431	4834	5236	5639		
86	6042	6444	6847	7250	7652	8055	8458	8860	9263	9665		
87	03290068	0471	0873	1276	1678	2081	2484	2886	3289	3691		
88	4094	4496	4899	5302	5704	6107	6509	6912	7314	7717		
89	8119	8522	8925	9327	9730	0̄132	0535	0937	1340	1742		
0790	03302145	2547	2950	3352	3755	4157	4560	4962	5365	5767		
91	6169	6572	6974	7377	7779	8182	8584	8987	9389	9791		
92	03310194	0596	0999	1401	1803	2206	2608	3011	3413	3815	402	402
93	4218	4620	5023	5425	5827	6230	6632	7035	7437	7839		1 40
94	8241	8644	9046	9449	9851	0̄253	0656	1058	1460	1862		2 80 3 121
95	03322265	2667	3069	3472	3874	4276	4679	5081	5483	5885		4 161
96	6288	6690	7092	7495	7897	8299	8701	9104	9506	9908		5 201
97	03330310	0712	1115	1517	1919	2321	2724	3126	3528	3930		6 241
98	4332	4735	5137	5539	5941	6343	6746	7148	7550	7952		7 281 8 322
99	8354	8756	9159	9561	9963	0̄365	0767	1169	1571	1973		9 362
N.	0	1	2	3	4	5	6	7	8	9	D	Pts.

TABLE II.

For finding Logarithms and Numbers to 20 Places of Figures.

N.	Logarithms.	N.	Logarithms.
1	00000 00000 00000 00000	51	70757 01760 97936 36584
2	30102 99956 63981 19521	52	71600 33436 34799 15963
3	47712 12547 19662 43730	53	72427 58696 00789 04563
4	60205 99913 27962 39043	54	73239 37598 22968 50710
5	69897 00043 36018 80479	55	74036 26894 94243 84554
6	77815 12503 83643 63251	56	74818 80270 06200 41635
7	84509 80400 14256 83071	57	75587 48556 72491 39863
8	90308 99869 91943 58564	58	76342 79935 62937 28255
9	95424 25094 39324 87459	59	77085 20116 42144 19026
10	00000 00000 00000 00000	60	77815 12503 83643 63251
11	04139 26851 58225 04075	61	78532 98350 10767 03389
12	07918 12460 47624 82772	62	79239 16894 98253 87488
13	11394 33523 06836 76921	63	79934 05494 53581 70530
14	14612 80356 78238 02593	64	80617 99739 83887 17128
15	17609 12590 55681 24208	65	81291 33566 42855 57399
16	20411 99826 55924 78085	66	81954 39355 41868 67326
17	23044 89213 78273 92854	67	82607 48027 00826 43415
18	25527 25051 03306 06980	68	83250 89127 06236 31897
19	27875 36009 52828 96154	69	83884 90907 37255 31616
20	30102 99956 63981 19521	70	84509 80400 14256 83071
21	32221 92947 33919 26801	71	85125 83487 19075 28609
22	34242 26808 22206 23596	72	85733 24964 31268 46023
23	36172 78360 17592 87887	73	86332 28601 20455 90107
24	38021 12417 11606 02294	74	86923 17197 30976 19202
25	39794 00086 72037 60957	75	87506 12633 91700 04687
26	41497 33479 70817 96442	76	88081 35922 80791 35196
27	43136 37641 58987 31189	77	88649 07251 72481 87146
28	44715 80313 42219 22114	78	89209 46026 90480 40172
29	46239 79978 98956 08733	79	89762 70912 90441 42799
30	47712 12547 19662 43730	80	90308 99869 91943 58564
31	49136 16938 34272 67967	81	90848 50188 78649 74918
32	50514 99783 19905 97607	82	91381 38523 83716 68972
33	51851 39398 77887 47805	[illegible]	91907 80923 76073 90383
34	53147 89170 42255 12375	[illegible]	92427 92860 61881 65843
35	54406 80443 50275 63550	85	92941 89257 14292 73333
36	55630 25007 67287 26502	86	93449 84512 43567 72162
37	56820 17240 66994 99681	87	93951 92526 18618 52463
38	57978 35966 16810 15675	88	94448 26721 50168 62639
39	59106 46070 26499 20650	89	94939 00066 44912 78472
40	60205 99913 27962 39043	90	95424 25094 39324 87459
41	61278 38567 19735 49451	91	95904 13923 21093 59992
42	62324 92903 97900 46322	92	96378 78273 45555 26930
[illegible]	63346 84555 79586 52641	93	96848 29485 53935 11696
44	64345 26764 86187 43118	94	97312 78535 99698 65963
45	65321 25137 75343 67938	95	97772 36052 88847 76032
46	66275 78316 81574 07408	96	98227 12330 39568 41336
47	67209 78579 35717 46441	97	98677 17342 66244 85178
48	68124 12373 75587 21815	98	99122 60756 92494 85664
49	69019 60800 28513 66142	99	99563 51945 97549 91534
50	69897 00043 36018 80479	100	00000 00000 00000 00000

N.	Logarithms.	N.	Logarithms.
101	00432 13737 82642 57428	151	17897 69472 93169 43687
102	00860 01717 61917 56105	152	18184 35879 44772 54718
103	01283 72247 05172 20517	153	18469 14308 17598 80313
104	01703 33392 98780 35485	154	18752 07208 36463 06668
105	02118 92990 69938 07279	155	19033 16981 70291 48445
106	02530 58652 64770 24085	156	19312 45983 54461 59693
107	02938 37776 85209 64083	157	19589 96524 09233 73676
108	03342 37554 86949 70231	158	19865 70869 54422 62321
109	03742 64979 40623 63520	159	20139 71243 20451 48293
110	04139 26851 58225 04075	160	20411 99826 55924 78085
111	04532 29787 86657 43410	161	20682 58760 31849 70958
112	04921 80226 70181 61157	162	20951 50145 42630 94439
113	05307 84434 83419 72280	163	21218 76044 03957 80764
114	05690 48513 36472 59405	164	21484 38480 47697 88494
115	06069 78403 53611 68365	165	21748 39442 13906 28283
116	06445 79892 26918 47776	166	22010 80880 40055 09905
117	06818 58617 46161 64380	167	22271 64711 47583 27998
118	07188 20073 06125 38547	168	22530 92817 25862 85365
119	07554 69613 92530 75925	169	22788 67046 13673 53841
120	07918 12460 47624 82772	170	23044 89213 78273 92854
121	08278 53703 16450 08150	171	23299 61103 92153 83615
122	08635 98306 74748 22910	172	23552 84469 07548 [illegible]
123	08990 51114 39397 93180	173	23804 61031 28795 41456
124	09342 16851 62235 07009	174	24054 92482 82599 71984
125	09691 00130 08056 41436	175	24303 80486 86294 44028
126	10037 05451 17562 90052	176	24551 26678 14149 82161
127	10380 37209 55956 86425	177	24797 32663 61806 62756
128	10720 99696 47868 36650	178	25042 00023 08893 97994
129	11058 97102 99248 96370	179	25285 30309 79893 16957
130	11394 33523 06836 76921	180	25527 25051 03306 06980
131	11727 12956 55764 26081	181	25767 85748 69184 51029
132	12057 39312 05849 86847	182	26007 13879 85074 79513
133	12385 16409 67085 79225	183	26245 10897 30429 47118
134	12710 47983 64807 62936	184	26481 78230 09536 46451
135	13033 37684 95006 11667	185	26717 17284 03013 80159
136	13353 89083 70217 51418	186	26951 29442 17916 31218
137	13672 05671 56406 76856	187	27184 16065 36498 96929
138	13987 90864 01236 51138	188	27415 78492 63679 85484
139	14301 48002 54095 08046	189	27646 18041 73244 14260
140	14612 80556 78238 02593	190	27875 36009 52828 96154
141	14921 91126 55379 90171	191	28103 33672 47727 53764
142	15228 83443 83056 48131	192	28330 12287 03549 [illegible]
143	15533 60374 65061 80996	193	28555 73090 07773 76060
144	15836 24920 95249 65545	194	28780 17299 30226 04700
145	16136 [illegible] 34974 89212	195	29003 46113 62518 01129
146	16435 28557 84437 09629	196	29225 60713 56476 05185
147	16731 73347 48176 09872	197	29446 62261 61592 92737
148	17026 17153 94057 38724	198	29666 51902 61531 11055
149	17318 [illegible] 12274 03826	199	29885 30764 09706 65010
150	[illegible] 12590 55681 24208	200	30102 99956 63981 19521

N.	Logarithms.	N.	Logarithms.
201	30319 60574 20488 87144	251	39967 37214 81038 13934
202	30535 13694 46623 76949	252	40140 05407 81544 09573
203	30749 60379 13212 91805	253	40312 05211 75817 91962
204	30963 01674 25898 75626	254	40483 37166 19938 05946
205	31175 38610 55754 29930	255	40654 01804 33955 17062
206	31386 72203 69153 40038	256	40823 99653 11849 56171
207	31597 03454 56917 75346	257	40993 31233 31294 53710
208	31806 33349 62761 55006	258	41161 97059 63230 15891
209	32014 62861 11054 00229	259	41329 97640 81251 89758
210	32221 92947 33919 26801	[illegible]	41497 33479 70817 96442
211	32428 24552 97692 66508	261	41664 05073 38280 96102
212	32633 58609 28751 46606	262	41830 12913 19745 43602
213	32837 96034 38737 72339	263	41995 57484 89757 86697
214	33041 37733 49190 83605	[illegible]	42160 39268 69831 06369
215	33243 84599 15605 33119	265	42324 58739 36807 85042
216	33445 37511 50930 89753	266	42488 16366 31066 96740
217	33645 97338 48529 51058	267	42651 12613 64575 22202
218	33845 64936 04604 83041	268	42813 47940 28788 82458
219	34044 41148 40118 33837	269	42975 22800 02407 98009
220	34242 26808 22206 23596	270	43136 37641 58987 31189
221	34439 22736 85110 69775	271	43296 92908 74405 72899
222	34635 29744 50638 62932	272	43456 89040 34198 70940
223	34830 48630 48160 67348	273	43616 26470 40756 03721
224	35024 80183 34162 80678	274	43775 05628 20387 96378
225	35218 25181 11362 48416	275	43933 26938 30262 65032
226	35410 84391 47400 91801	276	44090 90820 65217 70639
227	35602 58571 93122 72010	277	44247 97690 64448 55378
228	35793 48470 00453 78926	278	44404 47959 18076 27567
229	35983 54823 39837 99413	279	44560 42032 73597 53426
230	36172 78360 17592 87887	280	44715 80313 42219 22114
231	36361 19798 92144 30876	281	44870 63199 05079 89286
232	36548 79848 90899 67297	282	45024 91083 19361 09092
233	36735 59210 26018 97219	[illegible]	45178 64355 24290 23556
234	36921 58574 10142 83901	284	45331 83400 47037 07652
235	37106 78622 71736 26920	285	45484 48600 08510 20362
236	37291 20029 70106 58069	286	45636 60331 29043 00517
237	37474 83460 10103 86529	287	45788 18967 33992 32522
238	37657 69570 56511 95447	288	45939 24877 59230 85066
239	37839 79009 48137 68500	289	46089 78427 56547 85708
240	38021 12417 11606 02294	290	46239 79978 93956 08733
241	38201 70425 74868 33408	291	46389 29889 85907 26908
242	38381 53659 80431 27671	292	46538 28514 48418 29150
243	38560 62735 98312 18648	293	46686 76203 54109 45684
244	38738 98263 38729 42431	294	46834 73304 12157 29393
245	38916 60843 64532 46621	295	46982 20159 78162 99503
246	39093 51071 03379 12702	296	47129 17110 58938 58245
247	39269 69532 59663 73074	297	47275 64493 17212 35264
248	39445 16808 26216 26531	298	47421 62640 76255 23347
249	39619 93470 95736 34113	299	47567 11883 24429 64807
250	39794 00086 72037 60957	300	47712 12547 19662 43730

N.	Logarithms.			
301	47856	64955	93843	35712
302	48000	69429	57150	63208
303	48144	26285	02305	01157
304	48287	35836	08753	74239
305	48429	98393	46785	83867
306	48572	14264	81579	99834
307	48713	83754	77186	48475
308	48855	07165	00444	26189
309	48995	84794	24834	64247
310	49136	16938	34272	67967
311	49276	03890	26837	50555
312	49415	45940	18442	79214
313	49554	43375	46448	48481
314	49692	96480	73214	93198
315	49831	05537	89600	51009
316	49968	70826	18403	81842
317	50105	92622	17751	49455
318	50242	71199	84432	67814
319	50379	06830	57181	12808
320	50514	99783	19905	07607
321	50650	50324	04872	07813
322	50785	58716	95830	90479
323	50920	25223	31102	89008
324	51054	50102	06612	13961
325	51188	33609	78874	37878
326	51321	76000	67939	00285
327	51454	77526	60286	07250
328	51587	38437	11679	08015
329	51719	58979	49974	29513
330	51851	39398	77887	47805
331	51982	79937	75718	73861
332	52113	80837	04036	29426
333	52244	42335	06319	87140
334	52374	64668	11564	47520
335	52504	48070	36845	23894
336	52633	92773	89844	04886
337	52762	99008	71338	62619
338	52891	67002	77654	73363
339	53019	96982	03082	16009
340	53147	89170	42255	12375
341	53275	43789	92497	72042
342	53402	61060	56135	03134
343	53529	41200	42770	49214
344	53655	84425	71530	11205
345	53781	90950	73274	12095
346	53907	60987	92776	60977
347	54032	94747	90873	71854
348	54157	92439	46580	91506
349	54282	54269	59179	89654
350	54406	[illegible]	50275	63550
351	54530	71164	65824	03109
352	54654	26634	78131	01682
353	54777	47053	87822	56550
354	54900	32620	25787	82277
355	55022	83530	55094	09088
356	55144	99979	72875	17515
357	55266	82161	12193	19655
358	55388	30266	43874	36478
359	55509	44485	78319	14782
360	55630	25007	67287	96502
361	55750	72019	05657	92307
362	55870	85705	33165	70550
363	55990	66250	36112	51880
364	56110	13836	49055	99035
365	56229	28644	56474	70586
366	56348	10853	94410	66639
367	56466	60642	52089	33799
368	56584	78186	73517	65972
369	56702	63661	59060	36910
370	56820	17240	66994	99681
371	56937	39096	15045	87635
372	57054	29398	81897	50739
373	57170	83318	08687	60551
374	57287	16022	00480	16450
375	57403	12677	27718	85165
376	57518	78449	27661	05006
377	57634	13502	05792	85654
378	57749	17998	37225	33781
379	57863	92099	68072	34193
380	57978	35966	16810	15675
381	58092	49756	75619	30154
382	58206	33629	11708	73285
383	58319	87739	68622	74038
384	58433	12243	67530	80379
385	58546	07295	08500	67625
386	58658	73046	71754	95581
387	58771	09650	18911	40100
388	58883	17255	94207	24221
389	58994	90013	25707	73624
390	59106	46070	26499	20650
391	59217	67573	95866	80741
392	59328	60670	20457	24707
393	59439	25503	75426	69811
394	59549	62218	25574	12259
395	59659	70956	26460	23278
396	59769	51859	25512	30577
397	59879	05067	63115	06588
398	59988	30720	73687	84531
399	[illegible]	28956	86748	22954
400	60205	99913	27962	39043

N.	Logarithms.	N.	Logarithms.
401	60314 43726 20182 30654	451	65417 65418 77960 53526
402	60422 60530 84470 06666	452	65513 84348 11382 11322
403	60530 50461 41109 44887	453	65609 82020 12831 87416
404	60638 13651 10604 96470	454	65705 58528 57103 91532
405	60745 50232 14668 55397	455	65801 13966 57112 40470
406	60852 60335 77194 11326	456	65896 48426 64434 98447
407	60959 44092 25220 03756	457	65991 62000 69850 22235
408	61066 01630 89879 05148	458	66086 54780 03869 16934
409	61172 33080 07341 80361	459	66181 26855 37261 24043
410	61278 38567 19735 49451	460	66275 78316 81574 07408
411	61384 18216 76069 20586	461	66370 09253 89648 14507
412	61489 72160 33134 59560	462	66464 19755 56125 50397
413	61595 00516 56401 02097	463	66558 09910 17953 13567
414	61700 03411 20898 94867	464	66651 79805 54880 86819
415	61804 80967 12092 70862	465	66745 29528 89953 92175
416	61909 33306 26742 74528	466	66838 59166 90000 16740
417	62013 60549 73757 51775	467	66931 68605 66112 16309
418	62117 62817 75035 19750	468	67024 58530 74124 03422
419	62221 40229 66295 30985	469	67117 28427 15083 26486
420	62324 92903 97900 46322	470	67209 78579 35717 46441
421	62428 20958 35668 30744	471	67302 09071 28896 17406
422	62531 24509 61673 86030	472	67394 19986 34087 77590
423	62634 03673 75042 33900	473	67486 11407 37811 56716
424	62736 58565 92732 63127	474	67577 83416 74085 06050
425	62838 89300 50311 53811	475	67669 36096 24866 57111
426	62940 95991 02718 91860	476	67760 69527 20493 14968
427	63042 78750 25023 86460	477	67851 83790 40113 92022
428	63144 37690 13172 03126	478	67942 78966 12118 88022
429	63245 72921 84724 24725	479	68033 55134 14563 22010
430	63346 84555 79586 52641	480	68124 12373 75587 21815
431	63447 72701 60731 60075	481	68214 50763 73831 76601
432	63546 37468 14912 09274	482	68304 70382 38849 57929
433	63648 78963 53365 44270	483	68394 71307 51512 14688
434	63748 97295 12510 70559	484	68484 53616 44412 47193
435	63848 92569 54637 32941	485	68574 17386 02263 65657
436	63948 64892 68586 02563	486	68663 62692 62293 38169
437	64048 14369 70421 84040	487	68752 89612 14634 33246
438	64147 41105 04099 53358	488	68841 98220 02710 61953
439	64246 45202 42121 37063	489	68930 88591 23620 24494
440	64345 26764 86187 43118	490	69019 60800 28513 66142
441	64443 85894 67838 53601	491	69108 14921 22968 47275
442	64542 22693 49091 89296	492	69196 51027 67360 32223
443	64640 37262 23069 56023	493	69284 69192 77230 01587
444	64738 29701 14619 82453	494	69372 69489 23646 92596
445	64836 00109 80931 58951	495	69460 51989 33568 72013
446	64933 48587 12141 86869	496	69548 16764 90197 46052
447	65030 75231 31936 47555	497	69635 63887 33352 11681
448	65127 80139 98144 00199	498	69722 93427 59717 53634
449	65224 63410 03323 17492	499	69810 05456 23389 91417
450	65321 25137 75343 67938	500	69897 00043 36018 80479

N.	Logarithms.	N.	Logarithms.
501	69983 77258 67245 71728	551	74115 15988 51785 04887
502	70070 37171 45019 33455	552	74193 90777 29198 90180
503	70156 79850 55927 39710	553	74272 51313 04698 25871
504	70243 05364 45525 29094	554	74350 97647 28429 74899
505	70329 13781 16661 37906	555	74429 29831 22676 23889
506	70415 05168 39799 11483	556	74507 47915 82057 47088
507	70500 79593 33595 97571	557	74585 51951 73728 90044
508	70586 37122 83919 25467	558	74663 41989 37578 74947
509	70671 77823 36758 74657	559	74741 18078 86423 29561
510	70757 01760 97936 36584	560	74818 80270 06200 41655
511	70842 09001 34712 73179	561	74896 28612 56161 40659
512	70926 99609 75830 75692	562	74973 63155 69061 08808
513	71011 73651 11816 27342	563	75050 83948 51346 22909
514	71096 31189 95275 73238	564	75127 91039 83342 29214
515	71180 72290 41191 00996	565	75204 84478 19433 52758
516	71264 97016 27211 35413	566	75281 64311 88271 43077
517	71349 05430 93942 50516	567	75358 30588 92906 57989
518	71432 97597 45233 02273	568	75434 83357 11018 87173
519	71516 73578 48457 85186	569	75511 22663 95071 17229
520	71600 33436 34799 15963	570	75587 48556 72491 39883
521	71683 77232 99524 47424	571	75663 61082 45848 05004
522	71767 05030 02262 15714	572	75739 60287 93024 20038
523	71850 16888 67274 23926	573	75815 46219 67389 97493
524	71933 12869 83726 65124	574	75891 18923 97973 59044
525	72015 93034 05956 87758	575	75966 78446 89630 48844
526	72098 57441 53739 06419	576	76042 24834 23212 04587
527	72181 06152 12546 60821	577	76117 58131 55731 42849
528	72263 39225 33812 25890	578	76192 78384 20529 05229
529	72345 56720 35185 75774	579	[illegible] 85637 27436 19789
530	72427 58696 00789 04563	580	76342 79935 62937 28255
531	72509 45210 81469 06485	581	76417 61323 90330 73454
532	72591 16322 95048 18268	582	76492 29846 49888 48429
533	72672 72090 26572 26372	583	76566 85547 59014 08638
534	72754 12570 28556 41723	584	76641 28471 12399 48672
535	72835 37820 21228 44562	585	76715 58660 82160 44858
536	72916 47896 92770 01979	586	76789 76160 18090 63146
537	72997 42856 99535 60687	587	76863 81012 47614 47606
538	73078 22756 66389 17530	588	76937 73260 76136 48915
539	73158 87651 86738 70217	589	77011 52947 87101 64120
540	73239 37598 22968 50710	590	77085 20116 42144 19026
541	73319 72651 06569 [illegible]	591	77158 74808 81255 36467
542	73399 92865 38386 92473	592	77232 17067 22919 77766
543	73479 98295 88846 [illegible]	593	77305 46933 64262 60640
544	73559 88906 98179 90461	594	77378 64449 81193 54765
545	73639 65022 76642 43999	595	77451 69657 28540 56404
546	73719 26427 04737 23243	596	77524 62597 40236 42868
547	73798 73263 33430 77331	597	77597 43311 29369 08740
548	73878 05584 84369 15899	598	77670 11839 88410 84329
549	73957 23444 50091 [illegible]	599	77742 68223 89311 37983
550	74036 26894 94243 84554	600	77815 12503 83643 69251

N.	Logarithms.				N.	Logarithms.			
601	77887	44720	02739	52089	651	81358	09885	68191	94767
602	77959	64912	57824	55233	652	81424	75957	31920	19807
603	78031	73121	40151	30874	653	81491	31812	75073	92143
604	78103	69386	21131	82730	654	81557	77483	24267	26771
605	78175	53746	52468	88629	655	81624	12999	91783	06560
606	78247	26241	66286	20678	656	81690	38393	75660	27536
607	78318	86910	75257	58096	657	81756	53695	59780	77566
608	78390	35792	72734	93761	658	81822	58936	13955	49034
609	78461	72926	32875	35534	659	81888	54145	94009	86128
610	78532	98350	10767	03389	660	81954	39355	41868	67326
611	78604	12102	42554	23362	661	[redacted]	14594	85640	23665
612	78675	14221	45561	19356	662	82085	79894	39699	93382
613	78746	04745	18415	03774	663	82151	35284	04773	13504
614	78816	83711	41167	67997	664	82216	80793	68017	48947
615	78887	51157	75416	73659	665	82282	16453	03104	59703
616	78958	07121	64425	45710	666	82347	42291	70301	06661
617	79028	51640	33241	68205	667	82412	58339	16548	96620
618	79098	84750	88815	83768	668	82477	64624	75545	67041
619	79169	06490	20117	97680	669	82542	61177	67823	11077
620	79239	16894	98253	[redacted]	670	82607	48027	00826	43415
621	79309	16001	76580	19075	671	82672	25201	68992	07464
622	79379	03846	90818	70077	672	82736	92730	53825	24408
623	79448	80466	59169	61544	673	82801	50642	23976	84648
624	79518	45896	82423	98736	674	82865	98965	35319	82140
625	79588	00173	44075	21915	675	82930	37728	31024	92146
626	79657	43332	10429	68002	676	82994	66959	41635	92884
627	79726	75408	30716	43958	677	83058	86686	85144	31601
628	79795	96437	37196	12719	678	83122	96938	67063	35530
629	79865	06454	45268	92535	679	83186	97742	80501	68250
630	79934	05494	53581	70530	680	83250	89127	06236	31897
631	80002	93592	44134	31302	681	83314	71119	12785	15740
632	80071	70782	82385	01364	682	83378	43746	56478	91563
633	80140	37100	17355	10238	683	83442	07036	81532	56340
634	80208	92578	81732	68977	684	83505	61017	20116	22655
635	[redacted]	37252	91975	66903	685	[redacted]	05714	92425	57335
636	80345	71156	48413	87336	686	83632	41157	06751	68735
637	80413	94323	35350	43063	687	83695	67370	59550	43142
638	80482	06787	21162	32330	688	83758	84382	35511	30726
639	80550	08581	58400	16068	689	83821	92219	07625	81464
640	80617	99739	83887	17128	690	83884	90907	37255	31616
641	80685	80295	18817	42225	691	83947	80473	74198	40758
642	80753	50280	68853	27334	692	84010	60944	56757	80499
643	80821	09729	24222	07249	693	84073	32346	11806	74605
644	80888	58673	59812	10001	694	84135	94704	54854	91375
645	80955	97146	35267	76849	695	84198	48045	90113	88524
646	81023	25179	95084	08529	696	84260	92396	10562	11027
647	81090	42806	68700	38446	697	84323	27780	98009	42305
648	81157	50058	70593	33482	698	84385	54226	23161	09175
649	81224	46968	00369	23101	699	84447	71757	45681	40948
650	81291	33566	42855	57399	700	84509	80400	14256	83071

N.	Logarithms.
701	84571 80179 66658 65706
702	84633 71121 29805 27631
703	84695 53250 19823 95834
704	84757 26591 42112 21203
705	84818 91169 91398 70650
706	84880 47010 51803 76071
707	84941 94137 96899 40499
708	85003 32576 89769 01798
709	85064 62351 83066 54285
710	85125 83487 19075 28609
711	85186 96007 29766 30258
712	85247 99936 36856 37036
713	85308 95298 51865 55853
714	85369 82117 76174 39176
715	85430 60418 01080 61474
716	85491 30223 07855 56000
717	85551 91556 67800 12230
718	85612 44442 42300 34303
719	85672 88903 82882 60777
720	85733 24964 31268 46023
721	85793 52647 19429 03588
722	85853 71975 69639 11829
723	85913 82972 94530 82137
724	85973 85661 97146 90071
725	86033 80065 70993 69691
726	86093 66207 00093 71401
727	86153 44108 59037 83621
728	86213 13793 13037 18556
729	86272 75283 17974 62377
730	86332 28601 20455 90107
731	86391 73769 57860 45495
732	86451 10810 58391 80161
733	86510 39746 41127 94317
734	86569 60599 16070 53320
735	86628 73390 84194 90351
[illegible]	86687 78143 37498 85494
737	86746 74878 59051 47490
738	86805 63618 23041 56431
739	86864 44383 94825 73669
740	86923 17197 30976 19202
741	86981 82079 79328 16804
742	87040 39052 79027 07156
743	87098 88137 60575 29242
744	87157 29355 45878 70260
745	87215 62727 43292 84304
746	87273 88274 72668 80072
747	87332 06018 15398 77842
748	87390 15978 64461 · 35972
749	87448 18176 99466 47155
750	87506 12633 91700 04687

N.	Logarithms.
751	87563 99370 04168 38975
752	87621 78405 91642 24527
753	87679 49762 00700 57664
754	87737 13458 69774 05175
755	87794 69516 29188 24166
756	87852 17955 01206 53302
757	87909 58795 00072 75709
758	87966 92056 32053 53715
759	88024 17758 95480 35691
760	88081 35922 80791 35196
761	88138 46567 70572 82637
762	88195 49713 39600 49675
763	88252 45379 54880 46591
764	88309 33585 75689 92806
765	88366 14351 53617 60792
[illegible]	88422 87696 32603 93559
767	88479 53639 48980 95947
768	88536 12200 31511 99900
769	88592 63398 01431 03960
770	88649 07251 72481 87146
771	88705 43780 50956 97446
772	88761 73003 35736 15102
773	88817 94939 18324 90897
774	88874 09606 82892 59621
775	88930 17025 06310 28924
776	88986 17212 58188 43743
777	89042 10188 00914 26482
778	89097 95969 89688 93146
779	89153 74576 72564 45605
780	89209 46026 90480 40172
781	89265 10338 77300 32684
782	89320 67530 59848 00262
783	89376 17620 57943 39922
784	89431 60626 84438 44228
785	89486 96567 45252 54155
786	89542 25460 39407 89332
787	89597 47323 59064 55847
788	89652 62174 89555 31780
789	89707 70032 09420 30627
790	89762 70912 90441 42799
791	89817 64834 97676 55351
792	89872 51815 89493 50098
793	89927 31873 17603 80309
794	89982 05024 27096 26109
795	90036 71286 56470 28771
796	90091 30677 37669 04053
797	90145 83213 96112 34727
[illegible]	90200 28913 50729 42476
799	90254 67793 13991 39295
800	90308 99869 91943 58564

N.	Logarithms.	N.	Logarithms.
801	90363 25160 84237 65931	851	92992 95600 84587 87568
802	90417 43682 84163 50176	852	93043 95947 66700 11382
803	90471 55452 78680 94182	853	93094 90311 67523 03000
804	90525 60487 48451 26187	854	93145 78706 89005 05981
805	90579 58803 67868 51437	855	93196 61147 28172 64091
806	90633 50418 05090 64409	856	93247 37646 77153 22648
807	90687 35347 22070 41738	857	93298 08219 23198 16429
808	90741 13607 74586 15992	858	93348 72878 48705 44247
809	90794 85216 12272 30432	859	93399 31638 31242 30263
810	90848 50188 78649 74918	860	93449 84512 43567 72162
811	90902 08542 11156 03069	861	93500 31514 53654 76252
812	90955 60292 41175 30847	862	93550 72658 24712 79596
813	91009 05455 94068 16682	863	93601 07957 15209 59266
814	91062 44048 89201 23277	864	93651 37424 78893 28795
815	91115 76087 39976 61243	865	93701 61074 64814 21935
816	91169 01587 53861 14669	866	93751 78920 17346 63791
817	91222 20565 32415 48794	867	93801 90974 76210 29438
818	91275 33036 71322 99882	868	93851 97251 76491 90081
819	91328 39017 60418 47451	869	93901 97764 48666 46875
820	91381 38523 83716 68972	870	93951 92526 18618 52463
821	91434 31571 19440 77180	871	94001 81550 07663 20336
822	91487 18175 40050 40107	872	94051 64849 32567 22084
823	91539 98352 12269 83977	873	94101 42437 05569 72637
824	91592 72116 97115 79081	874	94151 14326 34403 03562
825	91645 39485 49925 08762	875	94200 80530 22313 24507
826	91698 00473 20382 21619	876	94250 41061 68080 72880
827	91750 55095 52546 67071	877	94299 95933 66040 51823
828	91803 03367 84880 14389	878	94349 45159 06102 56585
829	91855 45305 50273 55312	879	94398 88750 73771 89354
830	91907 80923 76073 90383	880	94448 26721 50168 62639
831	91960 10237 84110 99107	881	94497 59084 12047 91274
832	92012 33262 90723 94049	882	94546 85851 31819 73123
833	92064 50014 06787 58996	883	94596 07035 77568 58562
834	92116 60506 37738 71297	884	94645 22650 13073 08817
835	92168 64754 83602 08477	885	94694 32706 97825 43234
836	92220 62774 39016 39271	886	94743 37218 87050 75544
837	92272 54579 93259 99155	887	94792 36198 31726 39220
838	92324 40186 30276 50506	888	94841 29657 78601 01974
839	92376 19608 28700 27500	889	94890 17609 70213 69496
840	92427 92860 61881 65843	890	94939 00066 44912 78472
841	92479 59957 97912 17467	891	94987 77040 36874 78993
842	92531 20914 99649 50266	892	95036 48543 76123 06390
843	92582 75746 24742 33016	893	95085 14588 88546 42595
844	92634 24466 25655 05551	894	95133 75187 95917 67077
845	92685 67089 49692 34320	895	95182 30353 15911 97436
846	92737 03630 39023 53422	896	95230 80096 62125 19721
847	92788 34103 30706 91221	897	95279 24430 44092 08537
848	92839 58522 56713 82649	898	95327 63360 67304 37013
849	92890 76902 43952 67285	899	95375 96917 33223 76700
850	92941 89257 14292 73333	900	95424 25094 39324 87459

N.	Logarithms.
901	95472 47909 79062 97417
902	95520 65375 41941 73047
903	95568 77503 13505 79441
904	95616 84304 75363 30844
905	95664 85792 05203 31508
906	95712 81976 76813 06938
907	95760 72870 60095 25585
908	95808 58485 21085 11053
909	95856 38832 21967 44887
910	95904 13923 21093 59992
911	95951 83769 72998 24763
912	95999 48383 28416 17969
913	96047 07775 34298 94458
914	96094 61957 33831 41757
915	96142 10940 66448 27597
916	96189 54736 67850 38456
917	96236 93356 70021 09152
918	96284 26812 01242 43564
919	96331 55113 86111 26520
920	96378 78273 45555 26930
921	96425 96301 96848 92205
922	96473 00210 53629 34029
923	96520 17010 25912 05530
924	96567 19712 20106 69918
925	96614 17327 39032 60638
926	96661 09866 81934 33089
927	96707 97341 44497 07976
928	96754 79762 18862 06340
929	96801 57139 93641 76318
930	96848 29485 53935 11696
931	96894 96809 81342 62296
932	96941 59123 53981 36262
933	96988 16437 46499 94285
934	97034 68762 30093 35830
935	97081 16108 72517 77408
936	97127 58487 38105 22944
937	97173 95908 87778 26303
938	97220 28383 79064 46008
939	97266 55922 66110 92210
940	97312 78535 99698 65963
941	97358 96234 27256 90834
942	97405 09027 92877 36927
943	97451 16927 37328 37338
944	97497 19942 98068 97112
945	97543 18085 09262 94738
946	97589 11364 01792 76237
947	97634 99790 03273 41875
948	97680 83373 38066 25572
949	97726 62124 27292 67028
950	97772 36052 88847 76632
951	97818 05169 37413 93185
952	97863 69483 84474 34489
953	97909 29006 38326 40853
954	97954 83747 04095 11544
955	98000 33715 83746 34242
956	98045 78922 76100 07543
957	98091 19377 76843 56538
958	98136 55090 78544 41531
959	98181 86071 70663 59928
960	98227 12330 39568 41336
961	98272 33876 68545 35933
962	98317 50720 37812 96123
963	98362 62871 24534 51542
964	98407 70339 02830 77450
965	98452 73133 43792 56538
966	98497 71264 15493 34209
967	98542 64740 83001 67360
968	98587 53573 08393 66714
969	98632 37770 50765 32737
970	98677 17342 66244 85178
971	98721 92299 08004 86280
972	98766 62649 26274 57690
973	98811 28402 68351 91117
974	98855 89568 78615 52768
975	98900 46156 98536 81607
976	98944 98176 66691 81474
977	98989 45637 18773 07091
978	99033 88547 87601 44015
979	99078 26918 03137 82547
980	99122 60756 92494 85664
981	99166 90073 79948 50979
982	99211 14877 86949 66797
983	99255 35178 32135 62275
984	99299 50984 31341 51745
985	99343 62304 97611 73216
986	99387 69149 41211 21109
987	99431 71526 69636 73242
988	99475 69445 87628 12117
989	99519 62915 97179 40527
990	99563 51945 97549 91534
991	99607 36544 85275 32836
992	99651 16721 54178 65574
993	99694 92484 95381 17590
994	99738 63843 97313 31202
995	99782 30807 45725 45489
996	99825 93384 23698 73156
997	99869 51583 11655 71988
998	99913 05412 87371 10938
999	99956 54882 25982 30869
1001	00043 40774 79318 64067

N.	Logarithms.	N.	Logarithms.
1003	00130 09330 20418 11880	1103	04257 55124 40190 59866
1005	00216 60617 56507 67623	1105	04336 22780 21729 50254
1007	00302 94705 53618 00717	1107	04414 76208 78722 80639
1009	00389 11662 36910 52172	1109	04493 15461 49160 06471
1011	00475 11555 91001 06349	1111	04571 40589 40867 61503
1013	00560 94453 60280 42845	1113	04649 51643 34708 31364
1015	00646 60422 49231 72283	1115	04727 48673 84779 47827
1017	00732 09529 22744 59739	1117	04805 31731 15609 05702
1019	00817 41840 06426 39490	1119	04883 00865 28350 04281
1021	00902 57420 86910 24725	1121	04960 56125 94973 15180
1023	00987 56337 12160 15771	1123	05037 97562 61457 7846[illegible]
1025	01072 38653 91773 10408	1125	05115 25224 47081 28895
1027	01157 04435 97278 19720	1127	05192 39160 46106 54029
1029	01241 53747 62432 92943	1129	05269 39419 24067 86114
1031	01325 86652 83516 54691	1131	05346 26049 25435 29384
1033	01410 03215 19620 57904	1133	05422 99098 63397 24592
1035	01494 03497 92936 55824	1135	05499 58615 29741 52489
1037	01577 87563 80040 96243	1137	05576 04646 87734 77921
1039	01661 55475 57177 41240	1139	05652 37240 79100 36269
1041	01745 07205 10536 15583	1141	05728 56444 18214 63835
1043	01828 43084 26530 86897	1143	05804 62303 95281 73884
1045	01911 62904 47072 80707	1145	05880 54866 75906 79892
1047	01994 66816 78842 33384	1147	05956 34179 01267 67648
1049	02077 54881 93557 85991	1149	06032 00286 88285 1776[illegible]
1051	02160 27160 28242 22008	1151	06107 53236 29791 80185
1053	02242 83711 85486 51839	1153	06182 93072 94699 02164
1055	02325 24596 33711 46987	1155	06258 19842 28163 11355
1057	02407 49873 07426 26758	1157	06333 33589 51749 55393
1059	02489 59601 07485 00279	1159	06408 34359 63593 99543
1061	02571 53839 01340 66612	1161	06483 22197 38573 83830
1063	02653 32645 23296 75697	1163	06557 97147 28448 41139
1065	02734 96077 74756 52817	1165	06632 59253 62037 77696
1067	02816 44194 24469 89253	1167	06707 08560 45370 17354
1069	02897 77052 08778 01749	1169	06781 45111 61840 11069
1071	02978 94608 31855 63385	1171	06855 68950 72363 12990
1073	03059 97219 65951 08414	1173	06929 80121 15529 24471
1075	03140 84642 51624 13598	1175	07003 78666 07755 07399
1077	03221 57032 97981 58511	1177	07077 64628 43434 68158
1079	03302 14446 82010 67304	1179	07161 38050 95039 13541
1081	03382 56939 54310 34328	1181	07224 98976 13511 79908
1083	03462 84566 25320 36037	1183	07298 47446 27930 36912
1085	03542 97381 85148 31517	1185	07371 83503 46122 67008
1087	03622 95440 86294 53993	1187	07445 07189 51591 22047
1089	03702 78797 55774 95610	1189	07518 18546 18691 38184
1091	03782 47505 88341 87761	1191	07591 17614 82777 50316
1093	03862 01619 49762 79227	1193	07664 04436 70341 872[illegible]
1095	03941 41191 76137 14316	1195	07736 79052 84156 48379
1097	04020 66275 74711 13222	1197	07809 41504 06410 09984
1099	04099 76924 23490 56747	1199	07881 91830 98848 67593
1101	04178 73189 71751 77529		

Logarithms.				Differ. 1.			Diff. 2.		D. 3.
00432	13737	82642	57428	42999	24078	66099	42572	87346	84301
00432	56737	06721	23527	42998	81505	78753	42572	03045	84298
00432	99735	88227	02280	42998	38933	75708	42571	18747	84295
00433	42734	27160	77988	42997	96362	56961	42570	34452	84294
00433	85732	23523	34949	42997	53792	22509	42569	50158	84290
00434	28729	77315	57458	42997	11222	72351	42568	65868	84288
00434	71726	88538	29809	42996	68654	06483	42567	81580	84286
00435	14723	57192	36292	42996	26086	24903	[illegible]	97294	84283
00435	57719	83278	61195	42995	83519	27609	42566	13011	84281
00436	00715	66797	88804	42995	40953	14598	42565	28730	84277
00436	43711	07751	03402	42994	98387	85868	42564	44453	84277
00436	86706	06138	89270	42994	55823	41415	42563	60176	84272
00437	29700	61962	30685	42994	13259	81239	42562	75904	84271
00437	72694	75222	11924	42993	70697	05335	42561	91633	84268
00438	15688	45919	17259	42993	28135	13702	42561	07365	84266
00438	58681	74054	30961	42992	85574	06337	42560	23099	84263
00439	01674	59628	37298	42992	43013	83238	42559	38836	84260
00439	44667	02642	20536	42992	00454	44402	42558	54576	84258
00439	87659	03096	64938	42991	57895	89826	42557	70318	84257
00440	30650	60992	54764	42991	15338	19508	42556	86061	84251
00440	73641	76330	74272	42990	72781	33447	42556	01810	84252
00441	16632	49112	07719	42990	30225	31637	42555	17558	84248
00441	59622	79337	39356	42989	87670	14079	42554	33310	84245
00442	02612	67007	53435	42989	45115	80769	42553	49065	84244
00442	45602	12123	34204	42989	02562	31704	42552	64821	84239
00442	88591	14685	65908	42988	60009	66883	42551	80582	84239
00443	31579	74695	32791	42988	17457	86301	42550	96343	84236
00443	74567	92153	19092	42987	74906	89958	42550	12107	84233
00444	17555	67060	09050	42987	32356	77851	42549	27874	84230
00444	60542	99416	86901	42986	89807	49977	42548	43644	84228
00445	03529	89224	36878	42986	47259	06333	42547	59416	84225
00445	46516	36483	43211	42986	04711	46917	42546	75191	84225
00445	89502	41194	90128	42985	62164	71726	42545	90966	84219
00446	32488	03359	61854	42985	19618	80760	42545	06747	84219
00446	75473	22978	42614	42984	77073	74013	42544	22528	84214
00447	18458	00052	16627	42984	34529	51485	42543	38314	84215
00447	61442	34581	68112	42983	91986	13171	42542	54099	84200
00448	04426	26567	81283	42983	49443	59072	42541	69890	84209
00448	47403	76011	40355	42983	06901	89182	42540	85681	84205
00448	90392	82913	29537	42982	64361	03501	42540	01476	84204
00449	33375	47274	33038	42982	21821	02025	42539	17272	84199
00449	76357	69095	35063	42981	79281	84753	42538	33073	84199
00450	19339	48377	19816	42981	36743	51680	42537	48874	84196
00450	62320	85120	71496	42980	94206	02806	42536	[illegible]	84193
00451	05301	79326	74302	42980	51669	38128	42535	80485	84189
00451	48282	30996	12430	42980	09133	57643	42534	96296	84189
00451	91262	40129	70073	42979	66598	61347	42534	12107	84187
00452	34242	06728	31420	42979	24064	49240	42533	27920	84181
00452	77221	30792	80660	42978	81531	21320	42532	43739	84181
00453	[illegible]	12324	01980	42978	38998	77581	42531	59558	84178

Num.	Logarithms.				Differ. 1.			Diff. 2.		D.3.
101050	00453	63178	51322	79561	42977	96467	18023	42530	75380	84177
101051	00454	06156	47789	97584	42977	53936	42643	42529	91203	84172
101052	00454	49134	01726	40227	42977	11406	51440	42529	07031	84170
101053	00454	92111	13132	91667	42976	68877	44409	42528	22861	84168
101054	00455	35087	82010	36076	42976	26349	21548	42527	38693	84167
101055	00455	78064	08359	57624	42975	83821	82855	42526	54526	84165
101056	00456	21039	92181	40479	42975	41295	28329	42525	70364	[illegible]
101057	00456	64015	33476	68808	42974	98769	57965	42524	86205	84158
101058	00457	06990	32246	26773	42974	56244	71702	42524	02045	84155
101059	00457	49964	88490	98535	42974	13720	69717	42523	17890	84154
101060	00457	92939	02211	68252	42973	71197	51827	42522	33736	[illegible]
101061	00458	35912	73407	20079	42973	29675	18091	42521	49586	[illegible]
101062	00458	78886	02084	38170	42972	86153	68505	42520	65438	[illegible]
101063	00459	21858	88238	06675	42972	43633	03067	42519	81292	[illegible]
101064	00459	64831	31871	09742	42972	01113	21775	42518	97149	[illegible]
101065	00460	07803	32984	31517	42971	58594	24626	42518	13009	[illegible]
101066	00460	50774	91578	56143	42971	16076	11617	42517	28871	84137
101067	00460	93746	07654	67760	42970	73558	82746	42516	44734	[illegible]
101068	00461	36716	81213	50506	42970	31042	38012	42515	60602	[illegible]
101069	00461	79687	12255	88518	42969	88526	77410	42514	76472	[illegible]
101070	00462	22657	00782	65928	42969	46012	00938	42513	92342	[illegible]
101071	00462	65626	46794	66866	42969	03498	08596	42513	08216	[illegible]
101072	00463	08595	50292	75462	42968	60985	00378	42512	24095	[illegible]
101073	00463	51564	11277	75840	42968	18472	76283	42511	39973	84117
101074	00463	94532	29750	52123	42967	75961	36310	42510	55856	84116
101075	00464	37500	05711	88433	42967	33450	80454	42509	71740	84113
101076	00464	80467	39162	68887	42966	90941	08714	42508	87627	84111
101077	00465	23434	30103	77601	42966	48432	21087	42508	03516	84107
101078	00465	66400	78535	98688	42966	05924	17571	42507	19409	84107
101079	00466	09366	81460	16259	42965	63416	98162	42506	35302	84102
101080	00466	52332	47877	14421	42965	20910	62860	42505	51200	84102
101081	00466	95297	68787	77281	42964	78405	11660	42504	67098	84097
101082	00467	38262	17192	88941	42964	35900	44562	42503	83001	84093
101083	00467	81226	83093	33503	42963	93396	61561	42502	98906	84095
101084	00468	24190	76489	95064	42963	50893	62655	42502	14811	84090
101085	00468	67154	27383	57719	42963	08391	47844	42501	30721	84087
101086	00469	10117	35775	05563	42962	65890	17123	42500	46634	84087
101087	00469	53080	01665	22686	42962	23389	70489	42499	62547	84083
101088	00469	96042	25054	93175	42961	80890	07942	42498	78464	84080
101089	00470	39004	05945	01117	42961	38391	29478	42497	94384	[illegible]
101090	00470	81965	44336	30595	42960	95893	35094	42497	10306	[illegible]
101091	00471	24926	40229	65689	42960	53396	24788	42496	26229	84073
101092	00471	67886	93625	90477	42960	10899	98559	42495	42156	[illegible]
101093	00472	10847	04525	89036	42959	68404	56403	42494	58087	84079
101094	00472	53806	72930	45439	42959	25909	98316	42493	74017	84065
101095	00472	96765	98840	43755	42958	83416	24299	42492	89952	84065
101096	00473	39724	82256	68054	42958	40923	34347	42492	05889	[illegible]
101097	00473	82683	23180	02401	42957	98431	28458	42491	21829	84061
101098	00474	25641	21011	30859	42957	55940	06629	42490	37768	84059
101099	00474	68598	77551	37488	42957	13449	68861	42489	53716	[illegible]

Num.	Logarithms.				Differ. 1.			Diff. 2.		D. 3.
01100	00475	11555	91001	06349	42956	70960	15145	42488	69660	84050
01101	00475	54512	61961	21494	42956	28471	45485	42487	85610	84048
01102	00475	97468	90432	66979	42955	85983	59875	42487	01562	84046
01103	00476	40424	76416	26854	42955	43496	58315	42486	17516	84043
01104	00476	83380	19912	85167	42955	01010	40797	42485	33473	[illegible]
01105	00477	26335	20923	25964	42954	58525	07324	42484	49433	84040
01106	00477	69289	79448	33288	42954	16040	57891	42483	65393	84034
01107	00478	12243	95488	91179	42953	73556	92498	42482	81359	84035
01108	00478	55197	69045	83677	42953	31074	11139	42481	97324	84030
01109	00478	98151	00119	94816	42952	88592	13815	42481	13294	84028
01110	00479	41103	88712	08631	42952	46111	00521	42480	29266	84025
01111	00479	84056	34823	09152	42952	03630	71255	42479	45241	84026
101112	00480	27008	38453	80407	42951	61151	26014	42478	61215	84018
101113	00480	69959	99605	06421	42951	18672	64799	42477	77197	84020
101114	00481	12911	18277	71220	42950	76194	87602	42476	93177	84015
101115	00481	55861	94472	58822	42950	33717	94425	42476	09162	84013
101116	00481	98812	28190	53247	42949	91241	85263	42475	25149	84012
101117	00482	41762	19432	38510	42949	48766	60114	42474	41137	84008
101118	00482	84711	68198	98624	42949	06292	18977	42473	57129	[illegible]
101119	00483	27660	74491	17601	42948	63818	61848	42472	73123	84002
101120	00483	70609	38300	79449	42948	21345	88725	42471	89121	84003
101121	00484	13557	59655	68174	42947	78873	99604	42471	05118	83996
101122	00484	56505	38529	67778	42947	36402	94486	42470	21122	83998
101123	00484	99452	74032	62264	42946	93932	73364	42469	37124	83993
101124	00485	42399	68865	35628	42946	51463	36240	42468	53131	83990
101125	00485	85346	20328	71868	42946	08994	83109	42467	69141	83988
101126	[illegible]	28292	29323	54977	42945	66527	13968	42466	85153	83988
101127	00486	71237	95850	68945	42945	24060	28815	42466	01165	83982
101128	00487	14183	19910	97760	42944	81594	27650	42465	17183	83981
101129	00487	57128	01505	25410	42944	39129	10467	42464	33202	83978
101130	00488	00072	40634	35877	42943	96664	77265	42463	49224	83976
101131	00488	43016	37299	13142	42943	54201	28041	42462	65246	83971
101132	00488	85959	91500	41183	42943	11738	62795	42461	81275	83972
101133	00489	28903	03239	03978	42942	69276	81520	42460	97303	83969
01134	00489	71845	72515	85498	42942	26815	84217	42460	13334	83965
01135	00490	14787	99331	69715	42941	84355	70883	42459	29369	83964
01136	00490	57729	83687	40598	42941	41896	41514	42458	45405	83962
01137	00491	00671	25583	82112	42940	99437	90109	42457	61443	83957
01138	00491	43612	25021	78221	42940	56980	34666	42456	77486	83956
01139	00491	86552	82002	12887	42940	14523	57180	42455	93530	83954
01140	00492	29492	96525	70067	42939	72067	63650	42455	09576	83951
01141	00492	72432	68593	33717	42939	29612	54074	42454	25625	83949
01142	00493	15371	98205	87791	42938	87158	28449	42453	41676	83946
01143	00493	58310	85364	16240	42938	44704	86773	42452	57730	83944
01144	00494	01249	30069	03013	42938	02252	29043	42451	73786	83941
01145	00494	44187	32321	32056	42937	59800	55257	42450	89845	83938
01146	00494	87124	92121	87313	42937	17349	65412	42450	05907	83936
01147	00495	30062	09471	52725	42936	74899	59505	42449	21971	83934
01148	00495	72998	84371	12230	42936	32450	37534	42448	38037	83931
01149	00496	15935	16821	49764	42935	90001	99497	42447	54106	[illegible]

TABLE IV.

Log.	Number.	Differ. 1.	Diff. 2.	D. 3.
00000	10000 00000 00000 00000	23026 11602 68807	53020 20192	1 22087
00001	10000 23026 11602 68807	23026 64622 88999	53021 42279	1 22085
00002	10000 46052 76225 57806	23027 17644 31278	53022 64364	1 22093
00003	10000 69079 93869 89084	23027 70666 95642	53023 86457	1 22093
00004	10000 92107 64536 84726	23028 23690 82099	53025 08550	1 22094
00005	10001 15135 88227 66825	23028 76715 90649	53026 30644	1 22102
00006	10001 38164 64943 57474	23029 29742 21293	53027 52746	1 22100
00007	10001 61193 94685 78767	23029 82769 74039	53028 74846	1 22106
00008	10001 84223 77455 52806	23030 35798 48885	53029 96952	1 22104
00009	10002 07254 13254 01691	23030 88828 45837	53031 19056	1 22114
00010	10002 30285 02082 47528	23031 41859 64893	53032 41170	1 22112
00011	10002 53316 43942 12421	23031 94892 06063	53033 63282	1 22115
00012	10002 76348 38834 18484	23032 47925 69345	53034 85397	1 22120
00013	10002 99380 86759 87829	23033 00960 54742	53036 07517	1 22120
00014	10003 22413 87720 42571	23033 53996 62259	53037 29637	1 22125
00015	10003 45447 41717 04830	23034 07033 91896	53038 51762	1 22128
00016	10003 68481 48750 96726	23034 60072 43658	53039 73890	1 22128
00017	10003 91516 08823 40384	23035 13112 17548	53040 96018	1 22134
00018	10004 14551 21935 57932	23035 66153 13566	53042 18152	1 22136
00019	10004 37586 88088 71498	23036 19195 31718	53043 40288	1 22137
00020	10004 60623 07284 03216	23036 72238 72006	53044 62425	1 22142
00021	10004 83659 79522 75222	23037 25283 34431	53045 84567	1 22144
00022	10005 06697 04806 09653	23037 78329 18998	53047 06711	1 22146
00023	10005 29734 83135 28651	23038 31376 25709	53048 28857	1 22151
00024	10005 52773 14511 54360	23038 84424 54566	53049 51008	1 22151
00025	10005 75811 98936 08926	23039 37474 05574	53050 73159	1 22156
00026	10005 98851 36410 14500	23039 90524 78733	53051 95315	1 22158
00027	10006 21891 26934 93233	23040 43576 74048	53053 17473	1 22161
00028	10006 44931 70511 67281	23040 96629 91521	53054 39634	1 22163
00029	10006 67972 67141 58802	23041 49684 31155	53055 61797	1 22167
00030	10006 91014 16825 89957	23042 02739 92052	53056 83964	1 22170
00031	10007 14056 19565 82909	23042 55796 76916	53058 06134	1 22170
00032	10007 37098 75362 59825	23043 08854 83050	53059 28304	1 22177
00033	10007 60141 84217 42875	23043 61914 11354	53060 50481	1 22177
00034	10007 83185 46131 54229	23044 14974 61835	53061 72658	1 22180
00035	[illegible] 06229 61106 16064	23044 68036 34493	53062 94838	1 22185
00036	10008 29274 29142 50557	23045 21099 29331	53064 17023	1 22184
00037	10008 52319 50241 79888	23045 74163 46354	53065 39207	1 [illegible]
00038	10008 75365 24405 26242	23046 27228 85561	53066 61397	1 22192
00039	10008 98411 51634 11803	23046 80295 46958	53067 83589	1 22195
00040	10009 21458 31929 58761	23047 33363 30547	53069 05784	1 22196
00041	10009 44505 65292 89308	23047 86432 36331	53070 27980	1 22202
00042	10009 67553 51725 25639	23048 39502 64311	53071 50182	1 22202
00043	10009 90601 91227 89950	23048 92574 14493	53072 72384	1 22206
00044	10010 13650 83802 04443	23049 45646 86877	53073 94590	1 22208
00045	10010 36700 29448 91320	23049 98720 81467	53075 16798	1 22213
00046	10010 59750 28169 72787	23050 51795 98265	53076 39011	1 22213
00047	10010 82800 79965 71052	23051 04872 37276	53077 61224	1 22218
00048	10011 05851 84838 08328	23051 57949 98500	[illegible] 83442	1 22219
00049	10011 28903 42788 06828	23052 11028 81942	53080 05661	1 22224

Log.	Number.	Differ. 1.	Diff. 2.	D. 3.
00050	10011 51955 53816 88770	23052 64108 87603	53081 27885	1 22225
00051	10011 75008 17925 76373	23053 17190 15488	53082 50110	1 22228
00052	10011 98061 35115 91861	23053 70272 65598	53083 72338	1 22232
00053	10012 21115 05388 57459	23054 23356 37936	53084 94570	1 22233
00054	10012 44169 28744 95395	23054 76441 32506	53086 16803	1 22238
00055	10012 67224 05186 27901	23055 29527 49309	53087 39041	1 22238
00056	10012 90279 34713 77210	23055 82614 88350	53088 61279	1 22244
00057	10013 13335 17328 65560	23056 35703 49629	53089 83523	1 22245
00058	10013 36391 53032 15189	23056 88793 33152	53091 05768	1 22247
00059	10013 59448 41825 48341	23057 41884 38920	53092 28015	1 22252
00060	10013 82505 83709 87261	23057 94976 66935	53093 50267	1 22254
00061	10014 05563 78686 54196	23058 48070 17202	53094 72521	1 22255
00062	10014 28622 26756 71398	23059 01164 89723	53095 94776	1 22261
00063	10014 51681 27921 61121	23059 54260 84499	53097 17037	1 22262
00064	10014 74740 82182 45620	23060 07358 01536	53098 39299	1 22263
00065	10014 97800 89540 47156	23060 60456 40835	53099 61562	1 22270
00066	10015 20861 49996 87991	23061 13556 02397	53100 83832	1 22270
00067	10015 43922 63552 90388	23061 66656 86229	53102 06102	1 22273
00068	10015 66984 30209 76617	23062 19758 92331	53103 28375	1 22276
00069	10015 90046 49968 68948	23062 72862 20706	53104 50651	1 22280
00070	10016 13109 22830 89654	23063 25966 71357	53105 72931	1 22282
00071	10016 36172 48797 61011	23063 79072 44288	53106 95213	1 22284
00072	10016 59236 27870 05299	23064 32179 39501	53108 17497	1 22287
00073	10016 82300 60049 44800	23064 85287 56998	53109 39784	1 22290
00074	10017 05365 45337 01798	23065 38396 96782	53110 62074	1 22295
00075	10017 28430 83733 98580	23065 91507 58856	53111 84369	1 22295
00076	10017 51496 75241 57436	23066 44619 43225	53113 06664	1 22299
00077	10017 74563 19861 00661	23066 97732 49889	53114 28963	1 22301
00078	10017 97630 17593 50550	23067 50846 78852	53115 51264	1 22305
00079	10018 20697 68410 29402	23068 03962 30116	53116 73569	1 22306
00080	10018 43765 72402 59518	23068 57079 03685	53117 95875	1 22312
00081	10018 66834 29481 63203	23069 10196 99560	53119 18187	1 22312
00082	10018 89903 39678 62763	23069 63316 17747	53120 40499	1 22315
00083	10019 12973 02994 80510	23070 16436 58246	53121 62814	1 22318
00084	10019 36043 19431 38756	23070 69558 21060	53122 85132	1 22324
00085	10019 59113 88989 59816	23071 22681 06192	53124 07456	1 22321
00086	10019 82185 11670 66008	23071 75805 13648	53125 29777	1 22329
00087	10020 05256 87475 79656	23072 28930 43425	53126 52106	1 22329
00088	10020 28329 16406 23081	23072 82056 95531	53127 74435	1 22332
00089	10020 51401 98463 18612	23073 35184 69966	53128 96767	1 22336
00090	10020 74475 33647 88578	23073 88313 66733	53130 19103	1 22339
00091	10020 97549 21961 55311	23074 41443 85836	53131 41442	1 22339
00092	10021 20623 63405 41147	23074 94575 27278	53132 63781	1 22346
00093	10021 43698 57980 68425	23075 47707 91059	53133 86127	1 22345
00094	10021 66774 05688 59484	23076 00841 77186	53135 08472	1 22351
00095	10021 89850 06530 36670	23076 53976 85658	53136 30823	1 22350
00096	10022 12926 60507 22328	23077 07113 16481	53137 53173	1 22358
00097	10022 36003 67620 38809	23077 60250 69654	53138 75531	1 22355
00098	10022 59081 27871 08463	23078 13389 45185	53139 97886	1 22363
00099	10022 82159 41260 53648	23078 66529 43071	53141 20249	1 22362

Log.	Number.	Differ. 1.	Diff. 2.	D. 3.
00100	10023 05238 07789 96719	23079 19670 63320	53142 42611	1 22368
00101	10023 28317 27460 60039	23079 72813 05931	53143 64979	1 22367
00102	10023 51397 00273 65970	23080 25956 70910	53144 87346	1 22374
00103	10023 74477 26230 36880	23080 79101 58256	53146 09720	1 22374
00104	10023 97558 05331 95136	23081 32247 67976	53147 32094	1 22378
00105	10024 20639 37579 63112	23081 85395 00070	53148 54472	1 22380
00106	10024 43721 22974 63182	23082 38543 54542	53149 76852	1 22383
00107	10024 66803 61518 17724	23082 91693 31394	53150 99235	1 22386
00108	10024 89886 53211 49118	23083 44844 30629	53152 21621	1 22390
00109	10025 12969 98055 79747	23083 97996 52250	53153 44011	1 22392
00110	10025 36053 96052 31997	23084 51149 96261	53154 66403	1 22395
00111	10025 59138 47202 28258	23085 04304 62664	53155 88796	1 22398
00112	10025 82223 51506 90922	23085 57460 51460	53157 11194	1 22400
00113	10026 05309 08967 42382	23086 10617 62654	53158 33594	1 22403
00114	10026 28395 19585 05036	23086 63775 96248	53159 55997	1 22407
00115	10026 51481 83361 01284	23087 16935 52245	53160 78404	1 22407
00116	10026 74569 00296 53529	23087 70096 30649	53162 00811	1 22412
00117	10026 97656 70392 84178	23088 23258 31460	53163 23223	1 22415
00118	10027 20744 93651 15638	23088 76421 54683	53164 45638	1 22416
00119	10027 43833 70072 70321	23089 29586 00321	53165 68054	1 22421
00120	10027 66922 99658 70642	23089 82751 68375	53166 90475	1 22422
00121	10027 90012 82410 39017	23090 35918 58850	53168 12897	1 22425
00122	10028 13103 18328 97867	23090 89086 71747	53169 35322	1 22430
00123	10028 36194 07415 69614	23091 42256 07069	53170 57752	1 22430
00124	10028 59285 49671 76683	23091 95426 64821	53171 80182	1 22434
00125	10028 82377 45098 41504	23092 48598 45003	53173 02616	1 22438
00126	10029 05469 93696 86507	23093 01771 47619	53174 25054	1 22438
00127	10029 28562 95468 34126	23093 54945 72673	53175 47492	1 22443
00128	10029 51656 50414 06799	23094 08121 20165	53176 69935	1 22446
00129	10029 74750 58535 26964	23094 61297 90100	53177 92381	1 22448
00130	10029 97845 19833 17064	23095 14475 82481	53179 14829	1 22450
00131	10030 20940 34308 99545	23095 67654 97310	53180 37279	1 22454
00132	10030 44036 01963 96855	23096 20835 34589	53181 59733	1 22457
00133	10030 67132 22799 31444	23096 74016 94322	53182 82190	1 22459
00134	10030 90228 96816 25766	23097 27199 76512	53184 04649	1 22463
00135	10031 13326 24016 02278	23097 80383 81161	53185 27112	1 22464
00136	10031 36424 04399 83439	23098 33569 08273	53186 49576	1 22469
00137	10031 59522 37968 91712	23098 86755 57849	53187 72045	1 22469
00138	10031 82621 24724 49561	23099 39943 29894	53188 94514	1 22475
00139	10032 05720 64667 79455	23099 93132 24408	53190 16989	1 22476
00140	10032 28820 57800 03863	23100 46322 41397	53191 39465	1 22478
00141	10032 51921 04122 45260	23100 99513 80862	53192 61943	1 22483
00142	10032 75022 03636 26122	23101 52706 42805	53193 84426	1 22483
00143	10032 98123 56342 68927	23102 05900 27231	53195 06909	1 22484
00144	10033 21225 62242 96158	23102 59095 34140	53196 29393	1 22490
00145	10033 44328 21338 30298	23103 12291 63533	53197 51883	1 22495
00146	10033 67431 33629 93831	23103 65489 15416	53198 74378	1 22499
00147	10033 90534 99119 09247	23104 18687 89794	53199 96877	1 22501
00148	10034 13639 17806 99041	23104 71887 86671	53201 19378	1 22503
00149	10034 36743 89694 85712	23105 25089 06049	53202 41881	1 22506

TABLE V.

BRIGGS'S *Logarithms of all Numbers to 100, and of Primes under 1100, to Sixty-one Places.*

1	0·00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	000000	1
2	0·30102	99956	63981	19521	37388	94724	49302	67681	89881	46210	85413	104275	2
3	0·47712	12547	19662	43729	50279	03255	11530	92001	28864	19069	58648	292656	3
4	0·60205	99913	27962	39042	74777	89448	98605	35363	79762	92421	70826	208549	4
5	0·69897	00043	36018	80478	62611	05275	50697	32318	10118	53789	14586	895725	5
6	0·77815	12503	83643	63250	87667	97979	60833	59683	18745	65280	44061	402931	6
7	0·84509	80400	14256	83071	22162	58592	63619	34835	72396	32396	54065	036350	7
8	0·90308	99869	91943	58564	12166	84173	47908	03045	69644	38632	56239	312824	8
9	0·95424	25094	39324	87459	00558	06510	23061	84002	57728	38139	17296	597313	9
10	1·00000	00000	00000	00000	00000	00000	00000	00900	00000	00000	00000	000000	10
11	1·04139	26851	58225	04075	01999	71243	02424	17067	02190	46645	30945	965390	11
12	1·07918	12460	47624	82772	25056	92704	10136	27365	08627	11491	29474	507206	12
13	1·11394	33523	06836	76920	65051	57942	32843	08297	29188	38706	82718	011910	13
14	1·14612	80356	78238	02592	59551	53317	12922	02517	62277	78607	39478	140624	14
15	1·17609	12590	55681	24208	12890	08530	62228	24319	38982	72858	73235	194382	15
16	1·20411	99826	55924	78085	49555	78807	97210	70727	59525	84843	41652	417098	16
17	1·23044	89213	78273	92854	01698	94328	33703	00075	67878	42504	63973	803685	17
18	1·25527	25051	03306	06980	37947	01234	72364	51684	47609	84350	02709	701587	18
19	1·27875	36009	52828	96153	63334	75756	92931	79511	29337	39449	75989	068189	19
20	1·30102	99956	63981	19521	37388	94724	49302	67681	89881	46210	85413	104275	20
21	1·32221	92947	33919	26800	72441	61847	75150	26837	01260	51466	12713	335006	21
22	1·34242	26808	22206	23596	39388	65967	51726	84748	92071	92856	16359	069665	22
23	1·36172	78360	17592	87886	77771	12251	18954	96975	11034	33609	61882	756055	23
24	1·38021	12417	11606	02293	62445	87428	59438	95046	98508	57702	14887	611480	24
25	1·39794	00086	72047	60957	25222	10551	01394	64636	20237	07578	29173	791451	25
26	1·41497	33479	70817	96442	02440	52666	82145	75979	19069	84917	68131	116184	26
27	1·43136	37641	58987	31188	50837	09765	34592	76003	86592	57208	75944	895969	27
28	1·44715	80313	42219	22113	96940	48041	62234	70199	52159	24818	24891	244899	28
29	1·46239	79978	98956	88733	28467	62969	25499	12542	94417	88715	38410	653969	29
30	1·47712	12547	19662	43729	50279	03255	11530	92001	28864	19069	58648	298656	30
31	1·49136	16934	34272	67966	67041	00118	41572	23037	01558	30418	46559	383498	31
32	1·50514	99783	19905	97606	86944	73622	46513	38409	49407	31054	27065	521373	32
33	1·51851	39398	77887	47804	52278	74498	13955	09068	31054	65714	89594	264047	33
34	1·53147	89170	42255	12375	39087	89052	83005	67757	57259	88715	49386	907959	34
35	1·54406	80443	50275	63549	84773	63868	14316	67153	82514	86185	68651	932075	35
36	1·55630	25007	67287	26501	75335	95959	21667	19366	37491	30560	88122	805862	36
37	1·56820	17240	66994	99680	84506	89539	12944	79829	72690	16631	25466	176799	37
38	1·57978	35966	16810	15675	00723	70481	42234	47193	19218	85660	61402	172463	38
39	1·59106	46070	26499	20650	15330	61197	44374	00298	58052	57776	41366	310566	39
40	1·60205	99913	27962	39042	74777	89448	98605	35363	79762	92421	70826	208549	40
41	1·61278	38567	19735	49450	94118	49968	18079	95305	13633	83368	70890	073567	41
42	1·62324	92903	97900	46322	09830	56572	24452	94518	91141	97676	98126	439281	42
43	1·63346	84555	79586	52640	50881	53229	22215	88087	74884	38009	34145	247493	43
44	1·64345	26764	86187	43117	76777	60692	01029	52430	81953	39067	01772	173939	44
45	1·65321	25137	75343	67937	63469	11785	73759	16320	67846	91928	31883	493038	45
46	1·66275	78316	81574	07408	15160	06975	68257	64657	00915	79820	47295	860329	46
47	1·67209	78579	35717	46441	42193	99449	20064	01598	03098	42994	78270	373294	47
48	1·68124	12373	75587	21814	99834	82153	08741	62728	88390	03913	00300	715755	48
49	1·69019	60800	28513	66142	44325	17185	27238	69671	44792	64793	08130	072690	49
50	1·69897	00043	36018	80478	62611	05275	50697	32318	10118	53789	14586	895725	50
51	1·70757	01760	97936	36583	51977	97583	45233	92076	96242	61574	22622	102341	51
52	1·71600	33436	34799	15963	39829	47301	31448	43661	08951	81128	53544	220459	52
53	1·72427	58696	00789	04563	29922	91627	25659	26955	02401	29493	77805	941030	53
54	1·73239	37598	22968	50709	88226	04489	83895	43685	76474	03419	61358	000244	54
55	1·74036	26894	94243	84553	64610	76518	53121	49385	12309	00434	45532	861116	55
56	1·74818	80270	06200	41635	34329	42766	11527	37881	42040	71029	10304	349173	56
57	1·75587	48556	72491	39883	13613	79012	04462	71512	58201	58519	34637	366845	57
58	1·76342	79935	62937	28254	65856	57693	74801	80224	84299	34926	23823	758244	58
59	1·77085	20116	42144	19026	06563	84535	14423	89267	44474	93076	52155	272857	59
60	1·77815	12503	83643	63250	87667	97979	60833	59683	18745	65280	44061	402931	60

61	1·78532	98350	10767	03388	57485	13757	32134	92633	78757	11340	42120	703429
62	1·79239	16894	98253	87488	04429	94842	90874	90718	91439	76629	31972	487773
63	1·79934	05494	54581	70530	22720	65102	86681	18838	30124	70535	71361	633662
64	1·80617	99739	81887	17128	24333	68346	95816	06091	39288	77265	12478	625648
65	1·81291	33566	42855	57399	27662	63217	83540	40615	39306	92495	97304	907635
66	1·81954	39355	41868	67325	89667	69222	63257	76750	20936	11925	75007	368321
67	1·82607	48027	00826	43414	91316	29226	06858	09496	26080	56861	38691	179160
68	1·83250	89127	05236	31896	76476	83777	32308	35439	47141	34926	34800	012234
69	1·83884	90907	37255	31616	28050	15506	30485	88976	39898	52679	20531	054710
70	1·84509	80400	14256	83071	23162	58592	63619	34835	72396	32396	54065	036350
71	1·85125	83487	19075	28609	28294	35045	42913	52704	19901	60039	19762	766499
72	1·85733	24964	31268	46023	12724	90683	70969	87048	27372	76771	73535	910137
73	1·86332	28601	20455	90107	44869	00470	30853	44528	68255	31165	74851	100026
74	1·86923	17197	30976	19202	21895	84263	62247	47511	62571	62842	10879	281074
75	1·87506	12633	91700	04686	75501	13806	12925	56637	49101	26647	87822	090107
76	1·88081	35922	80791	35196	38112	65205	91537	14875	09100	31871	46815	276738
77	1·88649	07251	72481	87146	24162	29835	66043	51902	74586	79041	85011	00174[illegible]
78	1·89209	46026	90480	40171	52719	55921	03676	67980	47934	03987	26779	414841
79	1·89762	70912	90441	42799	48213	86478	24968	64828	62019	02515	03156	163518
80	1·90308	99869	91943	58564	12166	84173	47908	03045	69644	38632	56239	312824
81	1·90848	50188	78649	74918	01116	13020	46123	68005	15456	76278	34593	19462[illegible]
82	1·91381	38523	83716	68972	31507	44692	67382	62987	03515	29579	56303	17784[illegible]
83	1·91907	80923	76073	90383	27603	52027	26124	70016	37658	08063	04535	2947[illegible]
84	1·92427	92860	61881	65843	47219	51296	73755	62200	81023	43887	83539	543[illegible]
85	1·92941	89257	14292	73332	64309	99603	84400	32391	77496	96293	78560	699410
86	1·93449	84512	43567	72161	88270	47958	71518	55769	64765	84220	19558	351708
87	1·93951	92526	18618	52462	78746	66224	37030	04544	23282	07784	97058	952[illegible]
88	1·94448	26721	50168	62639	14166	55416	50332	20112	71834	85277	87185	[illegible]
89	1·94939	00066	44912	78472	35433	69702	44112	46651	61858	10024	45836	[illegible]
90	1·95424	25094	39324	87459	00558	06510	23061	84002	57728	38139	17296	5973[illegible]
91	1·95904	13923	21093	59991	87214	16534	96462	43133	01584	71103	36783	0482[illegible]
92	1·96378	78273	45555	26929	52549	01700	17560	32338	90797	26031	32708	964604
93	1·96848	29485	53935	11696	17320	03373	53103	15038	30422	49488	05207	69215[illegible]
94	1·97312	78535	99698	65962	79582	94173	69366	69279	92979	89205	63683	47756[illegible]
95	1·97772	36052	88847	76639	25945	81032	43629	11829	39465	93238	90575	963914
96	1·98227	12330	39568	41336	37223	76877	58044	30410	78271	50123	85713	820029
97	1·98677	17342	66244	85178	43618	11665	57744	94258	41584	63886	69747	[illegible]
98	1·99122	60756	92494	85663	81714	11909	76541	37353	34674	11603	93543	17[illegible]
99	1·99563	51945	97549	91534	02557	77753	25486	01069	59918	84784	48242	56[illegible]
101	2·00432	13737	82642	57427	51881	78222	93791	32192	69355	20645	25914	05[illegible]
103	2·01281	72247	05172	20517	10711	94580	23942	43905	21496	97603	05647	[illegible]
107	2·02938	37776	85209	64083	45412	39461	41564	61268	16891	63401	93519	[illegible]
109	2·03742	64979	40623	63520	05133	07613	87528	66422	04522	82798	36821	[illegible]
113	2·05307	84434	83419	72279	52270	28609	44818	47783	84623	62209	73395	[illegible]
127	2·10380	37209	55956	86424	69874	21827	28625	85765	63239	79239	38677	[illegible]
131	2·11727	12956	55764	26081	00542	70697	73859	47801	63117	12162	69689	[illegible]
137	2·13672	05671	56406	76856	29266	27114	78973	36782	29707	46423	50456	[illegible]
139	2·14301	48002	54095	08045	64332	02319	84731	44797	32967	91785	93390	[illegible]
149	2·17318	62684	12274	03825	73635	42628	33705	39346	71326	37222	11012	[illegible]
151	2·17897	69472	93169	43686	90730	55337	30278	84460	93428	77687	74510	[illegible]
157	2·19589	96524	09233	73676	14811	29897	28370	50651	90992	78552	95873	[illegible]
163	2·21218	76044	03957	80764	00914	35925	99475	49930	97247	35985	06185	[illegible]
167	2·22271	64711	47583	27998	40759	09920	46753	44613	38401	33125	82289	[illegible]
173	2·23804	61031	28795	41456	03302	58758	46588	77816	83269	13492	66453	[illegible]
179	2·25285	30309	79893	16957	03826	91773	05861	94310	72090	67852	86239	[illegible]
181	2·25767	85748	69184	51028	97436	76412	29249	22479	59232	72291	88769	[illegible]
191	2·28103	33672	47727	53768	50435	98270	61031	84957	36134	17824	30405	[illegible]
193	2·28555	73090	07773	76059	72386	46353	31082	10979	21601	94604	88412	[illegible]
197	2·29446	62261	61592	92737	17443	17717	15501	75120	64672	00453	36906	[illegible]
199	2·29885	30764	09706	65010	00217	84419	80284	14948	88771	49827	32431	[illegible]
211	2·32428	24552	97692	66509	13581	29927	88565	15502	58502	90193	86869	[illegible]
223	2·34830	48630	48160	67347	51762	16240	35284	44534	24237	98021	[illegible]	[illegible]
227	2·35602	58571	93122	72010	30489	64753	67294	74838	78261	56058	48416	[illegible]
229	2·35984	54823	59887	99412	79298	65526	65887	03358	93242	54128	14002	[illegible]
233	2·36736	59210	26018	97218	91388	35476	85936	08884	54098	32789	45750	[illegible]
239	2·37839	79009	48137	68500	16611	60147	89212	27097	22421	69429	85282	[illegible]

241	2·38201	70425	74868	38407	68839	66454	63294	43845	75422	87941	37116	090780	241
251	2·39967	37214	81038	13934	05493	16706	90408	18574	66685	39315	23086	557977	251
257	2·40993	31233	31294	53716	28954	65919	63183	09299	89891	62261	22190	657085	257
263	2·41996	57484	89757	86897	22335	83870	11811	42207	55733	87652	55581	847682	263
269	2·42975	22800	02407	98008	72285	15871	27175	37709	54680	10337	16358	202492	269
271	2·43296	92908	74405	72952	11801	94875	18026	90280	28099	71147	47196	959683	271
277	2·44247	97690	64448	55377	77563	19599	75831	09223	84739	72572	00838	275546	277
281	2·44870	63199	05079	89286	39179	16275	08871	55000	84994	87733	11091	225526	281
283	2·45178	64355	24290	23555	89519	10570	23772	98828	25398	13326	05411	834686	283
293	2·46686	76203	54109	45624	37585	12602	18133	14970	80293	87633	91801	387293	293
307	2·48713	83754	77186	48475	46084	36539	33504	93281	89817	26663	11352	567959	307
311	2·49276	03890	26837	50555	30231	83253	64155	85949	18519	90441	42367	782324	311
313	2·49554	43375	46448	48480	81265	04861	24315	15792	98693	98571	52993	196813	313
317	2·50105	92622	17751	49455	32290	16378	22488	04877	22158	71549	07278	111979	317
331	2·51982	79937	75718	73860	81406	07340	85663	50827	13549	69614	46087	295510	331
337	2·52762	99008	71338	62619	00147	90194	51019	87041	58106	86338	94145	590771	337
347	2·54032	94747	90873	71853	53573	03206	97397	86865	56176	91243	65052	250367	347
349	2·54282	54269	59179	89654	01719	77159	63066	31783	00866	75487	04181	990296	349
353	2·54777	47053	87822	56540	70693	15968	56119	79362	71500	87293	47356	171765	353
359	2·55509	44485	78319	14781	65293	94413	89970	02357	64461	12862	45018	194841	359
367	2·56466	60642	52089	33798	75290	93006	90914	75947	52157	57773	73388	529180	367
373	2·57170	88318	08687	60550	68969	38701	43991	49308	33032	45651	82236	828475	373
379	2·57863	92099	68072	34193	14620	59454	44405	29413	87210	96923	21381	081258	379
383	2·58319	87739	68622	74037	90461	29502	11234	47857	39787	51936	81090	658346	383
389	2·58994	96013	25707	73624	49469	11731	95270	14076	41221	24688	95645	064384	389
397	2·59879	05067	63115	06587	68482	40668	63112	25522	37562	91876	18078	588386	397
401	2·60314	43726	20182	30654	46411	48149	42549	75189	88963	37359	82761	562011	401
409	2·61172	33080	07341	80360	95027	17736	46679	00320	51595	65255	67279	407052	409
419	2·62221	40229	66295	30985	07395	99373	73621	25514	08166	99180	26223	814797	419
421	2·62428	20958	35668	30744	40669	23421	44371	09437	88488	01681	56998	058298	421
431	2·63447	72701	60731	60075	02803	26184	67878	49873	63233	16232	39160	168424	431
433	2·63648	78963	53365	44269	80664	49685	26766	08604	17833	53839	54652	633209	433
439	2·64246	45202	42121	37063	37411	50613	31363	46233	64482	93197	78492	698498	439
443	2·64640	37262	23069	56023	01044	89684	53902	83230	69450	39547	31960	218878	443
449	2·65224	63410	03323	17491	90263	53743	43105	35027	59942	01108	72112	409383	449
457	2·65991	62000	69850	22235	35461	45220	47714	05940	16155	52489	85626	587883	457
461	2·66370	09253	89648	14507	46818	18487	42133	71937	47244	04839	02463	622776	461
463	2·66558	09910	17953	13567	41931	08438	70855	40157	65450	46974	53874	838090	463
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479	2·68033	55134	14563	22009	69639	66962	31078	27266	76340	01805	94696	676822	479
487	2·68752	89612	14634	33246	32050	64435	75372	38433	54413	59009	69060	272887	487
491	2·69108	14921	22968	47275	36909	83546	39435	54324	95219	43164	65484	935064	491
499	2·69810	05456	23389	91416	59050	36033	38846	73162	68889	76585	04407	216866	499
503	2·70156	79850	55927	39709	82240	90279	52805	50061	79311	53264	13100	626989	503
509	2·70671	77823	36758	74656	80767	11564	25501	75116	31022	82795	59327	732505	509
521	2·71683	77232	99524	47423	63411	86589	82340	55592	48804	35659	10389	037518	521
523	2·71850	16888	67274	23926	01265	78891	07882	05229	27624	54022	80340	618542	523
541	2·73319	72651	06569	43687	93482	43895	35766	02744	51126	54918	07249	958843	541
547	2·73798	73263	33430	77381	26473	72542	06411	41123	32573	38734	83672	544294	547
557	2·74585	51951	73728	90044	34334	98899	38696	26667	22982	65562	88916	047639	557
563	2·75050	83948	51346	22909	45827	07761	08389	89309	27510	02997	46276	527041	563
569	2·75511	22663	95071	17228	70555	24030	20058	87808	40566	56954	49337	662164	569
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577	2·76117	58131	55731	42848	88336	67563	87165	18349	94631	00807	86067	506949	577
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601	2·77887	44720	02739	52088	58506	99987	83983	48917	52297	24032	80181	145090	601
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617	2·79028	51640	33241	68204	54661	67275	45331	98845	73431	10231	76836	317560	617
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631	2·80002	93592	44134	31301	69298	49975	36836	15526	21483	45926	22618	819406	631
641	2·80685	80295	18817	42224	83770	09638	02810	30784	64091	37064	08860	016375	641
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653	2·81491	31812	75073	92142	93105	65465	57968	44420	93073	59911	14836	790768	653
659	2·81888	54145	94009	86128	04846	07065	03884	71245	58914	63114	16630	487450	659
661	2·82020	14594	85640	23664	65718	97680	09240	24475	29556	41077	27411	001763	661
673	2·82801	50642	23976	84647	61709	94824	66587	84392	73852	95699	07219	527629	673
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709	2·85064	62351	83066	54285	38844	79778	89914	12079	23464	57372	91344	715434	709
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727	2·86153	44108	59037	83621	34642	48678	39613	39988	70242	96505	05660	709999	727
733	2·86510	39746	41127	94317	28131	02559	86776	12051	12268	36141	01539	967269	733
739	2·86864	44383	94825	73669	35855	14263	03827	78685	62960	06015	93030	162646	739
743	2·87098	88137	60575	29242	26723	41223	78639	86402	35201	25826	22906	426196	743
751	2·87563	99370	04168	38974	59851	09251	08913	79777	69486	72300	09449	287788	751
757	2·87909	58795	00072	75709	02275	46289	28831	29598	55610	77568	18424	909661	757
761	2·88138	46567	70572	82636	87243	35559	42944	66262	26115	19329	16113	770466	761
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787	2·89597	47323	59064	55847	49105	93093	84403	00557	33235	30892	05759	509372	787
797	2·90145	83213	96112	34726	66008	27220	37150	60763	80048	04080	90214	871170	797
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857	2·93298	08219	23198	16429	25296	94730	29838	44651	50336	92985	47521	566946	857
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877	2·94299	95933	66040	51822	80278	38057	14352	55114	87250	72879	32288	432978	877
881	2·94497	59084	12047	91274	23677	89471	82528	26645	36543	68702	11333	796990	881
883	2·94596	07035	77568	58561	59053	73327	89211	59413	79689	03497	15640	730610	883
887	2·94792	36198	31726	39219	65090	14904	07473	08873	98971	35988	60988	634764	887
907	2·95760	72870	60095	25584	72139	01553	62348	76134	78601	27524	63755	591947	907
911	2·95951	83769	72998	24763	28008	17777	19688	55416	00035	05336	77914	276734	911
919	2·96331	55113	86111	26519	69202	08586	23523	20678	28235	45128	04319	378878	919
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967	2·98542	64740	83001	67359	77060	21186	62711	98227	26427	50112	13308	635787	967
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1063	3·02653	32645	23296	75697	14741	94622	85093	72551	33664	50701	42150	299662	1063
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1087	3·03622	95440	86294	53992	62573	76344	44115	71246	06239	23536	42216	494710	1067
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1000014	6·00000	60800	80186	18352	95836	33379	44781	36746	93164	78031	21006	338144	4342	88619	00693	14243	06587	434	28319	04671	22965	86	85537	86905	26	05631
1000015	6·00000	65143	68370	90813	90946	03902	39979	10006	53621	84624	87961	816189	4342	88184	72460	95109	70523	434	28232	19133	36060	86	85511	81284	26	05621
1000016	6·00000	69486	56121	35129	52434	19648	62374	49595	84870	51711	55697	732043	4342	87750	44315	61488	15746	434	28145	33621	54777	86	85485	75673	26	05611
1000017	6·00000	73829	43437	51386	65786	56291	14775	78225	21030	21784	48551	912380	4342	87316	16257	13352	36643	434	28058	48135	79104	86	85459	70073	26	05600
1000018	6·00000	78172	30319	39672	16462	83902	87089	41655	39768	98355	56814	619163	4342	86881	88285	50676	27612	434	27971	62676	09031	86	85433	64483	26	05590
1000019	6·00000	82515	16767	00072	89836	66966	98540	85749	95298	99832	41238	539887	4342	86447	60400	73433	83064	434	27884	77242	44548	86	85407	58904	26	05579
1000020	6·00000	86858	02780	32675	71495	64387	39890	12427	23571	38144	61666	611150	4342	86013	32602	81598	97420	434	27797	91834	85644					

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
1·01	0·0099503	1·51	0·4121097	2·01	0·6981347	2·51	0·9202828
1·02	0·0198026	1·52	0·4187103	2·02	0·7030075	2·52	0·9242589
1·03	0·0295588	1·53	0·4252677	2·03	0·7080358	2·53	0·9282193
1·04	0·0392207	1·54	0·4317824	2·04	0·7129498	2·54	0·9321641
1·05	0·0487902	1·55	0·4382549	2·05	0·7178398	2·55	0·9360934
1·06	0·0582689	1·56	0·4446858	2·06	0·7227060	2·56	0·9400073
1·07	0·0676586	1·57	0·4510756	2·07	0·7275486	2·57	0·9439059
1·08	0·0769610	1·58	0·4574248	2·08	0·7323679	2·58	0·9477894
1·09	0·0861777	1·59	0·4637340	2·09	0·7371641	2·59	0·9516579
1·10	0·0953102	1·60	0·4700036	2·10	0·7419373	2·60	0·9555114
1·11	0·1043600	1·61	0·4762342	2·11	0·7466879	2·61	0·9593502
1·12	0·1133287	1·62	0·4824261	2·12	0·7514161	2·62	0·9631743
1·13	0·1222176	1·63	0·4885800	2·13	0·7561220	2·63	0·9669838
1·14	0·1310283	1·64	0·4946962	2·14	0·7608058	2·64	0·9707789
1·15	0·1397619	1·65	0·5007753	2·15	0·7654678	2·65	0·9745596
1·16	0·1484200	1·66	0·5068176	2·16	0·7701082	2·66	0·9783261
1·17	0·1570037	1·67	0·5128236	2·17	0·7747272	2·67	[illegible]
1·18	0·1655144	1·68	0·5187938	2·18	0·7793249	2·68	[illegible]
1·19	0·1739533	1·69	0·5247285	2·19	0·7839015	2·69	0·9895412
1·20	0·1823216	1·70	0·5306283	2·20	0·7884574	2·70	0·9932518
1·21	0·1906204	1·71	0·5364934	2·21	0·7929925	2·71	0·9969486
1·22	0·1988509	1·72	0·5423243	2·22	0·7975072	2·72	1·0006319
1·23	0·2070142	1·73	0·5481214	2·23	0·8020016	2·73	1·0043016
1·24	0·2151114	1·74	0·5538851	2·24	0·8064759	2·74	1·0079579
1·25	0·2231436	1·75	0·5596158	2·25	0·8109302	2·75	1·0116009
1·26	0·2311117	1·76	0·5653138	2·26	0·8153648	2·76	1·0152307
1·27	0·2390169	1·77	0·5709795	2·27	0·8197798	2·77	1·0188473
1·28	0·2468601	1·78	0·5766134	2·28	0·8241754	2·78	1·0224509
1·29	0·2546422	1·79	0·5822156	2·29	0·8285518	2·79	1·0260416
1·30	0·2623643	1·80	0·5877867	2·30	0·8329091	2·80	1·0296194
1·31	0·2700271	1·81	0·5933268	2·31	0·8372475	2·81	1·0331845
1·32	0·2776317	1·82	0·5988365	2·32	0·8415672	2·82	[illegible]
1·33	0·2851789	1·83	0·6043160	2·33	0·8458683	2·83	1·0402767
1·34	0·2926696	1·84	0·6097656	2·34	0·8501509	2·84	1·0438041
1·35	0·3001046	1·85	0·6151856	2·35	0.8544153	2·85	1·0473190
1·36	0·3074847	1·86	0·6205765	2·36	0·8586616	2·86	1·0508217
1·37	0·3148107	1·87	0·6259384	2·37	0·8628899	2·87	1·0543121
1·38	0·3220835	1·88	0·6312718	2·38	0·8671005	2·88	1·0577903
1·39	0·3293037	1·89	0·6365768	2·39	0·8712933	2·89	1·0612565
1·40	0·3364722	1·90	0·6418539	2·40	0·8754687	2·90	1·0647107
1·41	0·3435897	1·91	0·6471032	2·41	0·8796267	2·91	1·0681531
1·42	0·3506569	1·92	·6523252	2·42	0 8837675	2·92	1·0715836
1·43	0·3576745	1·93	0·6575200	2·43	0·8878913	2·93	1·0750024
1·44	0·3646431	1·94	0·6626880	2·44	0·8919980	2·94	1·0784096
1·45	0·3715636	1·95	0·6678294	2·45	0·8960880	2·95	1.0818052
1·46	0·3784364	1·96	0·6729445	2·46	0·9001613	2·96	1·0851893
1·47	0·3852624	1·97	0·6780335	2·47	0·9042182	2·97	1·0885619
1·48	0·3920421	1·98	0·6830968	2·48	0·9082586	2·98	1·0919233
1·49	0·3987761	1·99	0·6881346	2·49	0 9122827	2·99	1·0952734
1·50	0·4054651	2·00	0·6931472	2·50	0·9162907	3·00	1·0986123

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
3·01	1·1019401	3·51	1·2556160	4·01	1·3887912	4·51	1·5062971
3·02	1·1052568	3·52	1·2584610	4·02	1·3912819	4·52	1·5085120
3·03	1·1085626	3·53	1·2612979	4·03	1·3937664	4·53	1·5107219
3·04	1·1118575	3·54	1·2641267	4·04	1·3962447	4·54	1·5129270
3·05	1·1151416	3·55	1·2669476	4·05	1·3987169	4·55	1·5151272
3·06	1·1184149	3·56	1·2697605	4·06	1·4011829	4·56	1·5173226
3·07	1·1216776	3·57	1·2725656	4·07	1·4036429	4·57	1·5195132
3·08	1·1249296	3·58	1·2753628	4·08	1·4060970	4·58	1·5216990
3·09	1·1281711	3·59	1·2781522	4·09	1·4085450	4·59	1·5238800
3·10	1·1314021	3·60	1·2809338	4·10	1·4109870	4·60	1·5260563
3·11	1·1346227	3·61	1·2837078	4·11	1·4134230	4·61	1·5282278
3·12	1·1378330	3·62	1·2864740	4·12	1·4158532	4·62	1·5303947
3·13	1·1410330	3·63	1·2892326	4·13	1·4182774	4·63	1·5325569
3·14	1·1442228	3·64	1·2919837	4·14	1·4206958	4·64	1·5347144
3·15	1·1474025	3·65	1·2947272	4·15	1·4231083	4·65	1·5368672
3·16	1·1505720	3·66	1 2974631	4·16	1·4255151	4·66	1·5390154
3·17	1·1537316	3·67	1·3001917	4·17	1·4279160	4·67	1·5411591
3·18	1·1568812	3·68	1·3029128	4·18	1·4303112	4·68	1·5432981
3·19	1·1600209	3·69	1·3056265	4·19	1·4327007	4·69	1·5454326
3·20	1·1631508	3·70	1·3083328	4·20	1·4350845	4·70	1·5475625
3·21	1·1662709	3·71	1·3110319	4·21	1·4374626	4·71	1·5496879
3·22	1·1693814	3·72	1·3137237	4·22	1·4398351	4·72	1·5518088
3·23	1·1724821	3·73	1.3164082	4·23	1·4422020	4·73	1·5539252
3·24	1·1755733	3·74	1·3190856	4·24	1·4445633	4·74	1·5560371
3·25	1·1786550	3·75	1·3217558	4·25	1·4469190	4·75	1·5581446
3·26	1·1817272	3·76	1·3244190	4·26	1·4492692	4·76	1·5602476
3·27	1·1847900	3·77	1·3270750	4·27	1·4516138	4·77	1·5623463
3 28	1·1878434	3·78	1·3297240	4·28	1·4539530	4·78	1·5644405
3·29	1·1908876	3·79	1·3323660	4·29	1·4562868	4·79	1·5665303
3·30	1·1939225	3·80	1·3350011	4·30	1·4586150	4·80	1·5686159
3·31	1·1969482	3·81	1·3376292	4·31	1·4609379	4·81	1·5706971
3·32	1·1999648	3·82	1·3402504	4·32	1·4632554	4·82	1·5727739
3·33	1·2029723	3·83	1·3428648	4·33	1·4655675	4·83	1·5748465
3·34	1·2059708	3·84	1·3454724	4·34	1·4678743	4·84	1·5769147
3·35	1·2089603	3·85	1·3480731	4·35	1·4701758	4·85	1·5789787
3·36	1·2119410	3·86	1 3506672	4·36	1·4724721	4 86	1·5810384
3·37	1·2149127	3·87	1·3532545	4·37	1·4747630	4·87	1·5830939
3·38	1·2178757	3·88	1·3558352	4·38	1·4770487	4·88	1·5851452
3·39	1·2208299	3·89	1·3584092	4·39	1·4793292	4·89	1·5871923
3·40	1·2237754	3·90	1·3609766	4·40	1·4816045	4·90	1·5892352
3·41	1·2267123	3·91	1·3635374	4·41	1·4838747	4·91	1·5912739
3·42	1·2296406	3·92	1·3660917	4·42	1·4861397	4·92	1·5933085
3·43	1·2325603	3·93	1·3686394	4·43	1·4883996	4·93	1·5953390
3·44	1·2354715	3·94	1·3711807	4·44	1·4906544	4·94	1·5973653
3·45	1·2383742	3·95	1·3737156	4·45	1·4929041	4·95	1·5993876
3·46	1·2412686	3·96	1·3762440	4·46	1·4953488	4·96	1·6014057
3·47	1·2441546	3·97	1·3787661	4·47	1·4973884	4·97	1·6034198
3·48	1·2470323	3·98	1·3812818	4·48	1·4996230	4·98	1·6054299
3·49	1·2499017	3·99	1·3837912	4·49	1·5018527	4·99	1·6074359
3·50	1·2527630	4·00	1·3862944	4·50	1·5040774	5·00	1·6094379

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
5·01	1·6114359	5·51	1·7065646	6.01	1·7934247	6·51	1·8733395
5·02	1·6134299	5·52	1·7083779	6·02	1·7950873	6·52	1·8748744
5·03	1·6154200	5·53	1·7101878	6·03	1·7967470	6·53	1·8764069
5·04	1·6174061	5·54	1·7119945	6·04	1·7984040	6·54	1·8779372
5·05	1·6193883	5·55	1·7137979	6·05	1·8000583	6·55	1·8794650
5·06	1·6213665	5·56	1·7155981	6·06	1·8017098	6·56	1·8809900
5·07	1·6233408	5·57	1·7173951	6·07	1·8033580	6·57	1·8825138
5·08	1·6253113	5·58	1·7191888	6·08	1·8050047	6·58	1·8840347
5·09	1·6272778	5·59	1·7209793	6·09	1·8066481	6·59	1·8855533
5·10	1·6292405	5·60	1·7227666	6·10	1·8082888	6·60	1·8870696
5·11	1·6311994	5·61	1·7245507	6·11	1·8099268	6·61	1·8885836
5·12	1·6331544	5·62	1·7263317	6·12	1·8115621	6·62	1·8900934
5·13	1·6351057	5·63	1·7281094	6·13	1·8131947	6·63	1·8916048
5·14	1·6370531	5·64	1·7298841	6·14	1·8148247	6·64	1·8931130
5·15	1·6389967	5·65	1·7316555	6·15	1·8164521	6·65	1·8946169
5·16	1·6409366	5·66	1·7334239	6·16	1·8180768	6·66	1·8961195
5·17	1·6428727	5·67	1·7351891	6·17	1·8196988	6·67	1·8976198
5·18	1·6448051	5·68	1·7369512	6·18	1·8213183	6·68	1·8991180
5·19	1·6467337	5·69	1·7387102	6·19	1·8229351	[illegible]	1·9006139
5·20	1·6486586	5·70	1·7404662	6·20	1·8245493	6·70	1·9021075
5·21	1·6505799	5·71	1·7422190	6·21	1·8261609	6·71	1·9035990
5·22	1·6524974	5·72	1·7439680	6·22	1·8277699	6·72	1·9050882
5·23	1·6544113	5·73	1·7457155	6·23	1·8293763	6·73	1·9065751
5·24	1·6563215	5·74	1·7474593	6·24	1·8309802	6·74	1·9080599
5·25	1·6582281	5·75	1·7491998	6·25	1·8325815	6·75	1·9095425
5·26	1·6601310	5·76	1·7509375	6·26	1·8341802	6·76	1·9110229
5·27	1·6620304	5·77	1·7526721	6·27	1·8357764	6·77	1·9125011
5·28	1·6639261	5·78	1·7544037	6·28	1·8373700	6·78	1·9139771
5·29	1·6658182	5·79	1·7561323	6·29	1·8389611	6·79	1·9154509
5·30	1·6677068	5·80	1·7578579	6·30	1·8405496	6·80	1·9169226
5·31	1·6695918	5·81	1·7595806	6·31	1·8421357	6·81	1·9183921
5·32	1·6714733	5·82	1·7613003	6·32	1·8437192	6·82	1·9198595
5·33	1·6733512	5·83	1·7630170	6·33	1·8453002	6·83	1·9213247
5·34	1·6752257	5·84	1·7647308	6·34	1·8468788	6·84	1·9227877
5·35	1·6770966	5·85	1·7664416	6·35	1·8484548	[illegible]	1·9242487
5·36	1·6789640	5·86	1·7681496	6·36	1·8500284	6·86	1·9257074
5·37	1·6808279	5·87	1·7698546	6·37	1·8515995	6·87	1·9271641
5·38	1·6826884	5·88	1·7715568	6·38	1·8531681	6·88	1·9286187
5·39	1·6845454	5·89	1·7732560	6·39	1·8547343	6·89	1·9300711
5·40	1·6863990	5·90	1·7749524	6·40	1·8562980	6·90	1·9315214
5·41	1·6882491	5·91	1·7766458	6·41	1·8578593	6·91	1·9329696
5·42	1·6900958	5·92	1·7783364	6·42	1·8594181	6·92	1·9344158
5·43	1·6919391	5·93	1·7800242	6·43	1·8609745	6·93	1·9358598
5·44	1·6937791	5·94	1·7817091	6·44	1·8625285	6·94	1·9373018
5·45	1·6956156	5·95	1·7833912	6·45	1·8640801	6·95	1·9387417
5·46	1·6974488	5·96	1·7850705	[illegible]	1·8656293	6·96	1·9401795
5·47	1·6992786	5·97	1·7867469	6·47	1·8671761	6·97	1·9416152
5·48	1·7011051	5·98	1·7884206	6·48	1·8687205	6·98	1·9430489
5·49	1·7029283	5·99	1·7900914	6·49	1·8702625	6·99	1·9444805
5·50	1·7047481	6·00	1·7917595	6·50	1·8718022	7·00	1·9459101

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
7·01	1.9473377	7·51	2·0162355	8·01	2·0806908	8·51	2·1412419
7·02	1·9487632	7·52	2·0175661	8·02	2·0819384	8·52	2·1424163
7·03	1·9501867	7·53	2·0188950	8·03	2·0831845	8·53	2·1435894
7·04	1·9516082	7·54	2·0202222	8·04	2·0844291	8·54	2·1447610
7·05	1·9530276	7·55	2·0215476	8·05	2·0856721	8·55	2·1459313
7·06	1·9544451	7·56	2·0228712	8·06	2·0869136	8·56	2·1471002
7·07	1·9558605	7·57	2·0241931	8·07	2·0881535	8·57	2·1482677
7·08	1·9572739	7·58	2·0255132	8·08	2·0893919	8·58	2·1494340
7·09	1·9586853	7·59	2·0268316	8·09	2·0906287	8·59	2·1505988
7·10	1·9600948	7·60	2·0281482	8·10	2·0918641	8·60	2·1517622
7·11	1·9615022	7·61	2·0294632	8·11	2·0930979	8·61	2·1529244
7·12	1·9629077	7·62	2·0307764	8·12	2·0943301	8·62	2·1540851
7·13	1·9643112	7·63	2·0320878	8·13	2·0955609	8·63	2·1552445
7·14	1·9657128	7·64	2·0333976	8·14	2·0967901	8·64	2·1564026
7·15	1·9671124	7·65	2·0347056	8·15	2·0980179	8·65	2·1575593
7·16	1·9685100	7·66	2·0360120	8·16	2·0992442	8·66	2·1587147
7·17	1·9699056	7.67	2·0373166	8·17	2·1004689	8·67	2·1598688
7·18	1·9712994	7·68	2·0386195	8·18	2·1016922	8·68	2·1610215
7·19	1·9726912	7·69	2·0399208	8·19	2·1029139	8·69	2·1621729
7·20	1·9740810	7·70	2·0412203	8·20	2·1041342	8·70	2·1633230
7·21	1·9754690	7·71	2·0425182	8·21	2·1053529	8·71	2·1644718
7·22	1·9768550	7·72	2·0438144	8·22	2·1065702	8·72	2·1656192
7·23	1·9782390	7·73	2·0451089	8·23	2·1077860	8·73	2·1667654
7·24	1·9796212	7·74	2·0464017	8·24	2·1090003	8·74	2·1679102
7·25	1·9810015	7·75	2·0476928	8·25	2·1102125	8·75	2·1690537
7·26	1·9823798	7·76	2·0489823	8·26	2·1114246	8·76	2·1701959
7·27	1·9837563	7·77	2·0502702	8·27	2·1126345	8·77	2·1713368
7·28	1·9851309	7·78	2·0515563	8·28	2·1138430	8·78	2·1724764
7·29	1·9865035	7·79	2·0528409	8·29	2·1150500	8·79	2·1736147
7·30	1·9878743	7·80	2·0541237	8·30	2·1162555	8·80	2·1747517
7·31	1·9892433	7·81	2·0554050	8·31	2·1174596	8·81	2·1758874
7·32	1·9906103	7·82	2·0566846	8·32	2·1186623	8·82	2·1770219
7·33	1·9919755	7·83	2·0579625	8·33	2·1198634	8·83	2·1781550
7·34	1·9933388	7·84	2·0592388	8·34	2·1210632	8·84	2·1792869
7·35	1·9947003	7·85	2·0605135	8·35	2·1222615	8·85	2·1804175
7·36	1·9960599	7·86	2·0617866	8·36	2·1234584	8·86	2·1815468
7·37	1·9974177	7·87	2·0630581	8·37	2·1246539	8·87	2·1826748
7·38	1·9987736	7·88	2·0643279	8·38	2·1258479	8·88	2·1838016
7·39	2·0001277	7·89	2·0655961	8·39	2·1270405	8·89	2·1849270
7·40	2·0014800	7·90	2·0668628	8·40	2·1282317	8·90	2·1860513
7·41	2·0028304	7·91	2·0681278	8·41	2·1294215	8·91	2·1871742
7·42	2·0041791	7·92	2·0693912	8·42	2·1306098	8·92	2·1882959
7·43	2·0055259	7·93	2·0706530	8·43	2·1317968	8·93	2·1894164
7·44	2·0068708	7·94	2·0719133	8·44	2·1329823	8·94	2·1905356
7·45	2·0082140	7·95	2·0731719	8·45	2·1341664	8·95	2·1916535
7·46	2·0095554	7·96	2·0744290	8·46	2·1353492	8·96	2·1927702
7·47	2·0108950	7·97	2·0756845	8·47	2·1365305	8·97	2·1938857
7·48	2·0122328	7·98	2·0769384	8·48	2·1377104	8·98	2·1949999
7·49	2·0135688	7·99	2·0781907	8·49	2·1388890	8·99	2·1961128
7·50	2·0149030	8·00	2·0794415	8·50	2·1400662	9·00	2·1972246

N.	Logar.	N.	Logar.	N.	Logar.
9·01	2·1983351	9·36	2·2364453	9·71	2·2731563
9·02	2·1994443	9 37	2·2375131	9·72	2·2741856
9·03	2·2005524	9·38	2·2385797	9·73	2·2752139
9·04	2·2016592	9·39	2·2396453	9·74	2·2762411
9·05	2·2027648	9·40	2·2407097	9·75	2·2772673
9·06	2·2038691	9·41	2·2417729	9·76	2·2782924
9·07	2·2049723	9·42	2·2428351	9·77	2·2793165
9·08	2·2060742	9·43	2·2438961	9·78	2·2803395
9·09	2·2071749	9·44	2·2449560	9·79	2·2813615
9·10	2·2082744	9·45	2·2460147	9·80	2·2823824
9·11	2·2093727	9·46	2·2470724	9·81	2·2834023
9·12	2·2104698	9·47	2·2481289	9·82	2·2844211
9·13	2·2115657	9·48	2·2491843	9;83	2·2854389
9·14	2·2126604	9·49	2·2502386	9·84	2·2864557
9·15	2·2137539	9·50	2·2512918	9·85	2·2874715
9·16	2·2148462	9·51	2·2523439	9·86	2·2884862
9·17	2·2159373	9.52	2·2533947	9·87	2·2894999
9·18	2·2170272	9·53	2·2544446	9·88	2·2905125
9·19	2·2181159	9·54	2·2554935	9·89	2·2915241
9·20	2·2192035	9·55	2·2565411	9·90	2·2925348
9·21	2·2202898	9·56	2·2575877	9·91	2·2935444
9·22	2·2213750	9·57	2·2586332	9·92	2·2945529
9·23	2·2224590	9·58	2·2596775	9·93	2·2955605
9.24	2·2235419	9·59	2·2607209	9·94	2·2965670
9·25	2·2246236	9·60	2·2617631	9·95	2·2975726
9·26	2·2257040	9·61	2·2628042	9·96	2·2985771
9·27	2·2267834	9·62	2·2638443	9·97	2·2995806
9·28	2·2278615	9·63	2·2648832	9·98	2·3005831
9·29	2·2289385	9·64	2·2659211	9·99	2·3015846
9·30	2·2300144	9·65	2·2669579	10·00	2·3025851
9·31	2·2310891	9·66	2.2679936	100·0	4·6051702
9·32	2·2321626	9·67	2·2690283	1000	6·9077553
9·33	2·2332350	9·68	2·2700619	10000	9·2103404
9·34	2·2343062	9·69	2·2710944	100000	11·51292546
9·35	2·2353763	9·70	2·2721259		

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
1	0·0000000	51	3·9318256	101	4·6151205	151	5·0172798
2	0·6931472	52	3·9512437	102	4·6249728	152	5·0238805
3	1·0986123	53	3·9702919	103	4·6347290	153	5·0304379
4	1·3862944	54	3·9889840	104	4·6443909	154	5·0369526
5	1·6094379	55	4·0073332	105	4·6539604	155	5·0434251
6	1·7917595	56	4·0253517	106	4·6634391	156	5·0498560
7	1·9459101	57	4·0430513	107	4·6728288	157	5·0562458
8	2·0794415	58	4·0604430	108	4·6821312	158	5·0625950
9	2·1972246	59	4·0775374	109	4·6913479	159	5·0689042
10	2·3025851	60	4·0943446	110	4·7004804	160	5·0751738
11	2·3978953	61	4·1108739	111	4·7095302	161	5·0814044
12	2·4849066	62	4·1271344	112	4·7184989	162	5·0875963
13	2·5649494	63	4·1431347	113	4·7273878	163	5·0937502
14	2·6390573	64	4·1588831	114	4·7361984	164	5·0998664
15	2·7080502	65	4·1743873	115	4·7449321	165	5·1059455
16	2·7725887	66	4·1896547	116	4·7535902	166	5·1119878
17	2·8332133	67	4·2046926	117	4·7621739	167	5·1179938
18	2·8903718	68	4·2195077	118	4·7706846	168	5·1239640
19	2·9444390	69	4·2341065	119	4·7791235	169	5·1298987
20	2·9957323	70	4·2484952	120	4·7874917	170	5·1357984
21	3·0445224	71	4·2626799	121	4·7957905	171	5·1416636
22	3·0910425	72	4·2766661	122	4·8040210	172	5·1474945
23	3·1354942	73	4·2904594	123	4·8121844	173	5·1532916
24	3·1780538	74	4·3040651	124	4·8202816	174	5·1590553
25	3·2188758	75	4·3174881	125	4·8283137	175	5·1647860
26	3·2580965	76	4·3307333	126	4·8362819	176	5·1704840
27	3·2958369	77	4·3438054	127	4·8441871	177	5·1761497
28	3·3322045	78	4·3567088	128	4·8520303	178	5·1817836
29	3·3672958	79	4·3694479	129	4·8598124	179	5·1873858
30	3·4011974	80	4·3820266	130	4·8675345	180	5·1929569
31	3·4339872	81	4·3944492	131	4·8751973	181	5·1984970
32	3·4657359	82	4·4067192	132	4·8828019	182	5·2040067
33	3·4965076	83	4·4188406	133	4·8903491	183	5·2094862
34	3·5263605	84	4·4308168	134	4·8978398	184	5·2149358
35	3·5553481	85	4·4426513	135	4·9052748	185	5·2203558
36	3·5835189	86	4·4543473	136	4·9126549	186	5·2257467
37	3·6109179	87	4·4659081	137	4·9199809	187	5·2311086
38	3·6375862	88	4·4773368	138	4·9272537	188	5·2364420
39	3·6635616	89	4·4886364	139	4·9344739	189	5·2417470
40	3·6888795	90	4·4998097	140	4·9416424	190	5·2470241
41	3·7135721	91	4·5108595	141	4·9487599	191	5·2522734
42	3·7376696	92	4·5217886	142	4·9558271	192	5·2574954
43	3·7612001	93	4·5325995	143	4·9628446	193	5·2626902
44	3·7841896	94	4·5432948	144	4·9698133	194	5·2678582
45	3·8066625	95	4·5538769	145	4·9767337	195	5·2729996
46	3·8286414	96	4·5643482	146	4·9836066	196	5·2781147
47	3·8501476	97	4·5747110	147	4·9904326	197	5·2832037
48	3·8712010	98	4·5849675	148	4·9972123	198	5·2882670
49	3·8918203	99	4·5951199	149	5·0039463	199	5·2933048
50	3·9120230	100	4·6051702	150	5·0106353	200	5·2983174

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
201	5·3033049	251	5·5254529	301	5·7071103	351	5·8607862
202	5·3082677	252	5·5294291	302	5·7104270	352	5·8636312
203	5·3132060	253	5·5333895	303	5·7137328	353	5·8664681
204	5·3181200	254	5·5373343	304	5·7170277	354	5 8692969
205	5·3230100	255	5·5412635	305	5 7203118	355	5·8721178
206	5·3278762	256	5·5451774	306	5 7235851	[illegible]	5·8749307
207	5·3327168	257	5·5490761	307	5·7268477	357	5·8777358
208	5·3375381	258	5·5529596	308	5·7300998	358	[illegible]
209	5·3423343	259	5·5568281	309	5·7333413	359	5·8833224
210	5·3471075	260	5·5606816	310	5·7365723	[illegible]	5·8861040
211	5·3518581	261	5·5645204	311	5·7397929	361	5·8888790
212	5·3565863	262	5·5683445	312	5·7430032	362	5·8916442
213	5·3612922	263	5·5721540	313	5·7462032	363	5·8944025
214	5·3659760	264	5·5759491	314	5·7493930	364	5·8971539
215	5·3706380	265	5·5797298	315	5·7525726	365	5·8998974
216	5·3752784	266	5·5834963	316	5·7557422	366	5·9026333
217	5·3798974	267	5·5872487	317	5·7589018	367	5·9053618
218	5·3844951	268	5 5909870	318	5 7620514	368	5·9080829
219	5·3890717	269	5·5947114	319	5·7651911	369	5·9107966
220	5·3936275	270	5 5984220	320	5·7683210	370	5·9135030
221	5·3981627	271	5·6021188	321	5·7714411	371	5·9162021
222	5·4026774	272	5·6058021	322	5·7745515	372	5.9188939
223	5·4071718	273	5·6094718	323	5·7776523	373	5·9215784
224	5·4116461	274	5·6131281	324	5·7807435	374	5·9242558
225	5·4161004	275	5·6167711	325	5·7838252	375	5·9269260
226	5·4205350	276	5·6204009	[illegible]	5·7868974	376	5·9295891
227	5·4249500	277	5·6240175	327	5·7899602	377	5·9322452
228	5·4293456	[illegible]	5·6276211	328	5·7930136	378	5·9348942
229	5·4337220	279	5·6312118	[illegible]	5·7960578	379	5·9375362
230	5·4380793	280	5·6347896	330	5·7990927	380	5·9401713
231	5·4424177	281	5·6383547	[illegible]	5·8021184	381	5·9427994
232	5·4467374	282	5·6419071	[illegible]	5·8051350	382	5·9454206
233	5·4510385	283	5·6454469	333	5·8081425	[illegible]	5·9480350
234	5·4553211	284	5·6489742	334	5·8111410	384	5·9506426
235	5·4505855	285	5·6524892	335	5·8141305	385	5·9532433
236	5·4638318	286	5·6559918	[illegible]	5·8171112	386	5·9558374
237	5·4680601	[illegible]	5·6594822	337	5·8200829	387	5 9584247
238	5·4722707	[illegible]	5·6629605	[illegible]	5·8230459	[illegible]	5·9610053
239	5·4764636	289	5·6664267	339	5·8260001	389	5·9635793
240	5·4806389	[illegible]	5·6698809	340	5·8289456	390	5·966[illegible]467
241	5·4847969	291	5·6733233	341	5·8318825	391	5 9687016
242	5·4889377	292	5·6767538	342	5·8348107	392	5·9712618
243	5·4930614	293	5·6801726	343	5·8377304	[illegible]	5·9738096
244	5·4971682	294	5·6835798	344	5·8406417	[illegible]	5 9763509
245	5·5012582	295	5·6869754	345	5·8435444	395	5·9788858
246	5·5053315	296	5·6903595	346	5 8464388	396	5·9814[illegible]42
247	5·5093883	297	5·6937321	347	5·8493248	397	5·9839363
248	5·5134287	298	5·6970935	348	5·8522025	398	5 9864520
249	5·5174529	299	5·7004436	349	5·8550719	399	5·9889614
250	5·5214609	300	5·7037825	350	5·8579332	400	5·9914645

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
401	5·9939614	451	6·1114673	501	6·2166061	551	6·3117348
402	5·9964521	452	6·1136822	502	6·2186001	552	6·3135480
403	5·9989366	453	6·1158921	503	6·2205902	553	6·3153580
404	6·0014149	454	6·1180972	504	6·2225763	554	6·3171647
405	6·0038871	455	6·1202974	505	6·2245584	555	6·3189681
406	6·0063532	456	6·1224928	506	6·2265367	556	6·3207683
407	6·0088132	457	6·1246834	507	6·2285110	557	6·3225652
408	6·0112672	458	6·1268692	508	6·2304814	558	6·3243590
409	6·0137152	459	6·1290502	509	6·2324480	559	6·3261495
410	6·0161572	460	6·1312265	510	6·2344107	560	6·3279368
411	6·0185932	461	6·1333980	511	6·2363696	561	6·3297209
412	6·0210233	462	6·1355649	512	6·2383246	562	6·3315018
413	6·0234476	463	6·1377271	513	6·2402758	563	6·3332796
414	6·0258660	464	6·1398846	514	6·2422233	564	6·3350543
415	6·0282785	465	6·1420374	515	6·2441669	565	6·3368257
416	6·0306853	466	6·1441856	516	6·2461068	566	6·3385941
417	6·0330862	467	6·1463293	517	6·2480429	567	6·3403593
418	6·0354814	468	6·1484683	518	6·2499752	568	6·3421214
419	6·0378709	469	6·1506028	519	6·2519039	569	6·3438804
420	6·0402547	470	6·1527327	520	6·2538288	570	6·3456364
421	6·0426328	471	6·1548581	521	6·2557500	571	6·3473892
422	6·0450053	472	6·1569790	522	6·2576676	572	6·3491390
423	6·0473722	473	6·1590954	523	6·2595815	573	6·3508857
424	6·0497335	474	6·1612073	524	6·2614917	574	6·3526294
425	6·0520892	475	6·1633148	525	6·2633983	575	6·3543700
426	6·0544393	476	6·1654179	526	6·2653012	576	6·3561077
427	6·0567840	477	6·1675165	527	6·2672005	577	6·3578423
428	6·0591232	478	6·1696107	528	6·2690963	578	6·3595739
429	6·0614569	479	6·1717006	529	6·2709884	579	6·3613025
430	6·0637852	480	6·1737861	530	6·2728770	580	6·3630281
431	6·0661081	481	6·1758673	531	6·2747620	581	6·3647508
432	6·0684256	482	6·1779441	532	6·2766435	582	6·3664704
433	6·0707377	483	6·1800167	533	6·2785214	583	6·3681872
434	6·0730445	484	6·1820849	534	6·2803958	584	6·3699010
435	6·0753460	485	6·1841489	535	6·2822667	585	6·3716118
436	6·0776422	486	6·1862086	536	6·2841342	586	6·3733198
437	6·0799332	487	6·1882641	537	6·2859981	587	6·3750248
438	6·0822189	488	6·1903154	538	6·2878586	588	6·3767269
439	6·0844994	489	6·1923625	539	6·2897156	589	6·3784262
440	6·0867747	490	6·1944054	540	6·2915691	590	6·3801225
441	6·0890449	491	6·1964441	541	6·2934193	591	6·3818160
442	6·0913099	492	6·1984787	542	6·2952660	592	6·3835066
443	6·0935698	493	6·2005092	543	6.2971093	593	6·3851944
444	6·0958246	494	6·2025355	544	6·2989492	594	6·3868793
445	6·0980743	495	6·2045578	545	6·3007858	595	6·3885614
446	6·1003190	496	6·2065759	546	6·3026190	596	6·3902407
447	6·1025586	497	6·2085900	547	6·3044488	597	6·3919171
448	6·1047932	498	6·2106001	548	6·3062753	598	6·3935908
449	6·1070229	499	6·2126061	549	6·3080984	599	6·3952616
450	6·1092476	500	6·2146081	550	6·3099183	600	6·3969297

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
601	6·3985949	651	6·4785096	701	6·5525079	751	6·6214057
602	6·4002574	652	6·4800446	702	6·5539334	752	6·6227363
603	6·4019172	653	6·4815771	703	6·5553569	753	6·6240652
604	6·4035742	654	6·4831074	704	6·5567784	754	6·6253924
605	6·4052285	655	6·4846352	705	6·5581978	755	6·6267177
606	6·4068800	656	6·4861608	706	6·5596152	756	6·6280414
607	6·4085288	657	6·4876840	707	6·5610307	757	6·6293633
608	6·4101749	658	6·4892049	708	6·5624441	758	6·6306834
609	6·4118183	659	6·4907235	709	6·5638555	759	6·6320018
610	6·4134590	660	6·4922398	710	6·5652650	760	6·6333184
611	6·4150970	661	6·4937538	711	6·5666724	761	6·6346334
612	6·4167323	662	6·4952656	712	6·5680779	762	6·6359466
613	6·4183649	663	6·4967750	713	6·5694814	763	6·6372580
614	6·4199949	664	6·4982821	714	6·5708830	764	6·6385678
615	6·4216223	665	6·4997870	715	6·5722825	765	6·6398758
616	6·4232470	[redacted]	6·5012897	716	6·5736802	766	6·6411822
617	6·4248690	667	6·5027900	717	6·5750758	767	6·6424868
618	6·4264885	668	6·5042882	718	6·5764696	768	6·6437897
619	6·4281053	669	6·5057841	719	6·5778614	769	6·6450910
620	6·4297195	670	6·5072777	720	6·5792512	770	6·6463905
621	6·4313311	671	6·5087691	721	6·5806391	771	6·6476884
622	6·4329401	672	6·5102583	722	6·5820251	772	6·6489846
623	6·4345465	673	6·5117453	723	6·5834092	773	6·6502790
624	6·4361504	674	6·5132301	724	6·5847914	774	6·6515719
625	6·4377516	675	6·5147127	725	6·5861717	775	6·6528630
626	6·4393504	676	6·5161931	726	6·5875500	776	6·6541525
627	6·4409465	677	6·5176713	727	6·5889265	777	6·6554404
628	6·4425402	678	6·5191473	728	6·5903010	778	6·6567265
629	6·4441313	679	6·5206211	729	6·5916737	779	6·6580110
630	6·4457198	680	6·5220928	730	6·5930445	780	6·6592939
631	6·4473059	681	6·5235623	731	6·5944135	781	6·6605751
632	6·4488894	682	6·5250297	732	6·5957805	782	6·6618547
633	6·4504704	683	6·5264949	733	6·5971457	783	6·6631327
634	6·4520490	684	6·5279579	734	6·5985090	784	6·6644090
635	6·4536250	685	6·5294188	735	6·5998705	785	6·6656837
[illegible]	6·4551986	686	6·5308776	736	6·6012301	786	6·6669568
637	6·4567697	687	6·5323343	737	6·6025879	787	6·6682282
638	6·4583383	688	6·5337888	738	6·6039438	788	6·6694981
639	6·4599045	689	6·5352413	739	6·6052979	789	6·6707663
640	6·4614682	690	6·5366916	740	6·6066502	790	6·6720329
641	6·4630295	691	6·5381398	741	6·6080006	791	6·6732980
642	6·4645883	692	6·5395860	742	6·6093492	792	6·6745614
643	6·4661447	693	6·5410300	743	6·6106960	793	6·6758232
644	6·4676987	694	6·5424720	744	6·6120410	794	6·6770835
645	6·4692503	695	6·5439118	745	6·6133842	795	6·6783421
646	6·4707995	696	6·5453497	746	6·6147256	796	6·6795992
647	6·4723463	697	6·5467854	747	6·6160652	797	6·6808547
648	6·4738907	698	6·5482191	748	6·6174030	798	[illegible]
649	6·4754327	699	6·5496507	749	6·6187390	799	6·6833609
650	6·4769724	700	6·5510803	750	6·6200732	[redacted]	6·6846117

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
801	6·6858609	851	6·7464121	901	6·8035053	951	6·8575141
802	6·6871086	852	6·7475865	902	6·8046145	952	6·8585650
803	6·6883547	853	6·7487595	903	6·8057226	953	6·8596149
804	6·6895993	854	6·7499312	904	6·8068294	954	6·8606637
805	6·6908423	855	6·7511015	905	6·8079349	955	6·8617113
806	6·6920837	856	6·7522704	906	6·8090393	956	6·8627579
807	6·6933237	857	6·7534379	907	6·8101425	957	6·8638034
808	6·6945621	858	6·7546041	908	6·8112444	958	6·8648478
809	6·6957989	859	6·7557689	909	6·8123451	959	6·8658911
810	6·6970342	860	6·7569324	910	6·8134446	960	6·8669333
811	6·6982681	861	6·7580945	911	6·8145429	961	6·8679744
812	6·6995003	862	6·7592553	912	6·8156400	962	6·8690145
813	6·7007311	863	6·7604147	913	6·8167359	963	6·8700534
814	6·7019604	864	6·7615728	914	6·8178306	964	6·8710913
815	6·7031881	865	6·7627295	915	6·8189241	965	6·8721281
816	6·7044144	866	6·7638849	916	6·8200164	966	6·8731638
817	6·7056391	867	6·7650390	917	6·8211075	967	6·8741985
818	6·7068623	868	6·7661917	918	6·8221974	968	6·8752321
819	6·7080841	869	6·7673431	919	6·8232861	969	6·8762646
820	6·7093043	870	6·7684932	920	6·8243737	970	6·8772961
821	6·7105231	871	6·7696420	921	6·8254600	971	6·8783265
822	6·7117404	872	6·7707894	922	6·8265452	972	6·8793558
823	6·7129562	873	6·7719356	923	6·8276292	973	6·8803841
824	6·7141705	874	6·7730804	924	6·8287121	974	6·8814113
825	6·7153834	875	6·7742239	925	6·8297937	975	6·8824375
826	6·7165948	876	6·7753661	926	6·8308742	976	6·8834626
827	6·7178047	877	6·7765070	927	6·8319536	977	6·8844867
828	6·7190132	878	6·7776466	928	6·8330317	978	6·8855097
829	6·7202202	879	6·7787849	929	6·8341087	979	6·8865316
830	6·7214257	880	6·7799219	930	6·8351846	980	6·8875526
831	6·7226298	881	6·7810576	931	6·8362593	981	6·8885725
832	6·7238324	882	6·7821921	932	6·8373328	982	6·8895913
833	6·7250336	883	6·7833252	933	6·8384052	983	6·8906091
834	6·7262334	884	6·7844571	934	6·8394764	984	6·8916259
835	6·7274317	885	6·7855876	935	6·8405465	985	6·8926416
836	6·7286286	886	6·7867170	936	6·8416155	986	6·8936564
837	6·7298241	887	6·7878450	937	6·8426833	987	6·8946700
838	6·7310181	888	6·7889717	938	6·8437499	988	6·8956827
839	6·7322107	889	6·7900972	939	6·8448155	989	6·8966943
840	6·7334019	890	6·7912215	940	6·8458799	990	6·8977049
841	6·7345917	891	6·7923444	941	6·8469431	991	6·8987145
842	6·7357800	892	6·7934661	942	6·8480053	992	6·8997231
843	6·7369670	893	6·7945866	943	6·8490663	993	6·9007307
844	6·7381525	894	6·7957058	944	6·8501262	994	6·9017372
845	6·7393366	895	6·7968237	945	6·8511849	995	6·9027427
846	6·7405194	896	6·7979404	946	6·8522426	996	6·9037473
847	6·7417007	897	6·7990559	947	6·8532991	997	6·9047508
848	6·7428806	898	6·8001701	948	6·8543545	998	6·9057533
849	6·7440592	899	6·8012830	949	6·8554088	999	6·9067548
850	6·7452363	900	6·8023948	950	6·8564620	1000	6·9077553

N.	Logar.	N.	Logar.	N.	Logar.	N.	Logar.
1001	6·9087548	1051	6·9574974	1101	7·0039741	1151	7·0483864
1002	6·9097533	1052	6·9584484	1102	7·0048820	1152	7·0492548
1003	6·9107508	1053	6·9593985	1103	7·0057890	1153	7·0501225
1004	6·9117473	1054	6·9603477	1104	7·0066952	1154	7·0509894
1005	6·9127428	1055	6·9612960	1105	7·0076006	1155	7·0518556
1006	6·9137374	1056	6·9622435	1106	7·0085052	1156	7·0527210
1007	6·9147303	1057	6·9631900	1107	7·0094089	1157	7·0535857
1008	6·9157234	1058	6·9641356	1108	7·0103119	1158	7·0544497
1009	6·9167150	1059	6·9650803	1109	7·0112140	1159	7·0553128
1010	6·9177056	1060	6·9660242	1110	7·0121153	1160	7·0561753
1011	6·9186952	1061	6·9669671	1111	7·0130158	1161	7·0570370
1012	6·9196838	1062	6·9679092	1112	7·0139155	1162	7·0578979
1013	6·9206715	1063	6·9688504	1113	7·0148144	1163	7·0587582
1014	6·9216582	1064	6·9697907	1114	7·0157124	1164	7·0596176
1015	6·9226439	1065	6·9707301	1115	7·0166097	1165	7·0604764
1016	6·9236286	1066	6·9716686	1116	7·0175061	1166	7·0613344
1017	6·9246124	1067	6·9726063	1117	7·0184018	1167	7·0621916
1018	6·9255952	1068	6·9735430	1118	7·0192967	1168	7·0630482
1019	6·9265770	1069	6·9744789	1119	7·0201907	1169	7·0639040
1020	6·9275579	1070	6·9754139	1120	7·0210840	1170	7·0647590
1021	6·9285378	1071	6·9763481	1121	7·0219764	1171	7·0656134
1022	6·9295168	1072	6·9772813	1122	7·0228681	1172	7·0664670
1023	6·9304948	1073	6·9782137	1123	7·0237590	1173	7·0673198
1024	6·9314718	1074	6·9791453	1124	7·0246490	1174	7·0681720
1025	6·9324479	1075	6·9800759	1125	7·0255383	1175	7·0690234
1026	6·9334230	1076	6·9810057	1126	7·0264268	1176	7·0698741
1027	6·9343972	1077	6·9819347	1127	7·0273145	1177	7·0707241
1028	6·9353704	1078	6·9828628	1128	7·0282014	1178	7·0715734
1029	6·9363427	1079	6·9837900	1129	7·0290876	1179	7·0724219
1030	6·9373141	1080	6·9847163	1130	7·0299729	1180	7·0732697
1031	6·9382845	1081	6·9856418	1131	7·0308575	1181	7·0741168
1032	6·9392539	1082	6·9865665	1132	7·0317413	1182	7·0749632
1033	6·9402225	1083	6·9874902	1133	7·0326243	1183	7·0758089
1034	6·9411901	1084	6·9884132	1134	7·0335065	1184	7·0766538
1035	6·9421567	1085	6·9893353	1135	7·0343879	1185	7·0774981
1036	6·9431224	1086	6·9902565	1136	7·0352686	1186	7·0783416
1037	6·9440872	1087	6·9911769	1137	7·0361485	1187	7·0791844
1038	6·9450511	1088	6·9920964	1138	7·0370276	1188	7·0800265
1039	6·9460140	1089	6·9930151	1139	7·0379060	1189	7·0808679
1040	6·9469760	1090	6·9939330	1140	7·0387835	1190	7·0817086
1041	6·9479371	1091	6·9948500	1141	7·0396603	1191	7·0825486
1042	6·9488972	1092	6·9957662	1142	7·0405364	1192	7·0833878
1043	6·9498565	1093	6·9966815	1143	7·0414117	1193	7·0842264
1044	6·9508148	1094	6·9975960	1144	7·0422862	1194	7·0850643
1045	6·9517722	1095	6·9985096	1145	7·0431599	1195	7·0859015
1046	6·9527286	1096	6·9994225	1146	7·0440329	1196	7·0867379
1047	6·9536842	1097	7·0003345	1147	7·0449051	1197	7·0875737
1048	6·9546389	1098	7·0012456	1148	7·0457766	1198	7·0884[illegible]
1049	6·9555926	1099	7·0021160	1149	7·0466473	1199	7·0892432
1050	6·9565454	1100	7·0030655	1150	7·0475172	1200	7·090[illegible]

′	0	1	2	3	4	5	6	7	8	9	10	11	12
″	0	60	120	180	240	300	360	420	480	540	600	660	720
0		1·7782	1·4771	1·3010	1·1761	1·0792	0000	9331	8751	8239	7782	7368	6990
1	3·5563	1·7710	1·4735	1·2986	1·1743	1·0777	9988	9320	8742	8231	7774	7361	6984
2	3·2553	1·7639	1·4699	1·2962	1·1725	1·0763	9976	9310	8733	8223	7767	7354	6978
3	3·0792	1·7570	1·4664	1·2939	1·1707	1·0749	9964	9300	8724	8215	7760	7348	6972
4	2·9542	1·7501	1·4629	1·2915	1·1689	1·0734	9952	9289	8715	8207	7753	7341	6966
5	2·8573	1·7434	1·4594	1·2891	1·1671	1·0720	9940	9279	8706	8199	7745	7335	6960
6	2·7782	1·7368	1·4559	1·2868	1·1654	1·0706	9928	9269	8697	8191	7738	7328	6954
7	2·7112	1·7302	1·4525	1·2845	1·1636	1·0692	9916	9259	8688	8183	7731	7322	6948
8	2·6532	1·7238	1·4491	1·2821	1·1619	1·0678	9905	9249	8679	8175	7724	7315	6942
9	2·6021	1·7175	1·4457	1·2798	1·1601	1·0663	9893	9238	8670	8167	7717	7309	6936
10	2·5563	1·7112	1·4424	1·2775	1·1584	1·0649	9881	9228	8661	8159	7710	7302	6930
11	2·5149	1·7050	1·4390	1·2753	1·1566	1·0635	9869	9218	8652	8152	7703	7296	6924
12	2·4771	1·6990	1·4357	1·2730	1·1549	1·0621	9858	9208	8643	8144	7696	7289	6918
13	2·4424	1·6930	1·4325	1·2707	1·1532	1·0608	9846	9198	8635	8136	7688	7283	6912
14	2·4102	1·6871	1·4292	1·2685	1·1515	1·0594	9834	9188	8626	8128	7681	7276	6906
15	2·3802	1·6812	1·4260	1·2663	1·1498	1·0580	9823	9178	8617	8120	7674	7270	6900
16	2·3522	1·6755	1·4228	1·2640	1·1481	1·0566	9811	9168	8608	8112	7667	7264	6894
17	2·3259	1·6698	1·4196	1·2618	1·1464	1·0552	9800	9158	8599	8104	7660	7257	6888
18	2·3010	1·6642	1·4165	1·2596	1·1447	1·0539	9788	9148	8591	8097	7653	7251	6882
19	2·2775	1·6587	1·4134	1·2574	1·1430	1·0525	9777	9138	8582	8089	7646	7244	6877
20	2·2553	1·6532	1·4102	1·2553	1·1413	1·0512	9765	9128	8573	8081	7639	7238	6871
21	2·2341	1·6478	1·4071	1·2531	1·1397	1·0498	9754	9119	8565	8073	7632	7232	6865
22	2·2139	1·6425	1·4040	1·2510	1·1380	1·0484	9742	9109	8556	8066	7625	7225	6859
23	2·1946	1·6372	1·4010	1·2488	1·1363	1·0471	9731	9099	8547	8058	7618	7219	6853
24	2·1761	1·6320	1·3979	1·2467	1·1347	1·0458	9720	9089	8539	8050	7611	7212	6847
25	2·1584	1·6269	1·3949	1·2445	1·1331	1·0444	9708	9079	8530	8043	7604	7206	6841
26	2·1413	1·6218	1·3919	1·2424	1·1314	1·0431	9697	9070	8522	8035	7597	7200	6836
27	2·1249	1·6168	1·3890	1·2403	1·1298	1·0418	9686	9060	8513	8027	7590	7193	6830
28	2·1091	1·6118	1·3860	1·2382	1·1282	1·0404	9675	9050	8504	8020	7583	7187	6824
29	2·0939	1·6069	1·3831	1·2362	1·1266	1·0391	9664	9041	8496	8012	7577	7181	6818
30	2·0792	1·6021	1·3802	1·2341	1·1249	1·0378	9652	9031	8487	8004	7570	7175	6812
31	2·0649	1·5973	1·3773	1·2320	1·1233	1·0365	9641	9021	8479	7997	7563	7168	6807
32	2·0512	1·5925	1·3745	1·2300	1·1217	1·0352	9630	9012	8470	7989	7556	7162	6801
33	2·0378	1·5878	1·3716	1·2279	1·1201	1·0339	9619	9002	8462	7981	7549	7156	6795
34	2·0248	1·5832	1·3688	1·2259	1·1186	1·0326	9608	8992	8453	7974	7542	7149	6789
35	2·0122	1·5786	1·3660	1·2239	1·1170	1·0313	9597	8983	8445	7966	7535	7143	6784
36	2·0000	1·5740	1·3632	1·2218	1·1154	1·0300	9586	8973	8437	7959	7528	7137	6778
37	1·9881	1·5695	1·3604	1·2198	1·1138	1·0287	9575	8964	8428	7951	7522	7131	6772
38	1·9765	1·5651	1·3576	1·2178	1·1123	1·0274	9564	8954	8420	7944	7515	7124	6766
39	1·9652	1·5607	1·3549	1·2159	1·1107	1·0261	9553	8945	8411	7936	7508	7118	6761
40	1·9542	1·5563	1·3522	1·2139	1·1091	1·0248	9542	8935	8403	7929	7501	7112	6755
41	1·9435	1·5520	1·3495	1·2119	1·1076	1·0235	9532	8926	8395	7921	7494	7106	6749
42	1·9331	1·5477	1·3468	1·2099	1·1061	1·0223	9521	8917	8386	7914	7488	7100	6743
43	1·9228	1·5435	1·3441	1·2080	1·1045	1·0210	9510	8907	8378	7906	7481	7093	6738
44	1·9128	1·5393	1·3415	1·2061	1·1030	1·0197	9499	8898	8370	7899	7474	7087	6732
45	1·9031	1·5351	1·3388	1·2041	1·1015	1·0185	9488	8888	8361	7891	7467	7081	6726
46	1·8935	1·5310	1·3362	1·2022	1·0999	1·0172	9478	8879	8353	7884	7461	7075	6721
47	1·8842	1·5269	1·3336	1·2003	1·0984	1·0160	9467	8870	8345	7877	7454	7069	6715
48	1·8751	1·5229	1·3310	1·1984	1·0969	1·0147	9456	8861	8337	7869	7447	7063	6709
49	1·8661	1·5189	1·3284	1·1965	1·0954	1·0135	9446	8851	8328	7862	7441	7057	6704
50	1·8573	1·5149	1·3259	1·1946	1·0939	1·0122	9435	8842	8320	7855	7434	7050	6698
51	1·8487	1·5110	1·3233	1·1927	1·0924	1·0110	9425	8833	8312	7847	7427	7044	6692
52	1·8403	1·5071	1·3208	1·1908	1·0909	1·0098	9414	8824	8304	7840	7421	7038	6687
53	1·8320	1·5032	1·3183	1·1889	1·0894	1·0085	9404	8814	8296	7832	7414	7032	6681
54	1·8239	1·4994	1·3158	1·1871	1·0880	1·0073	9393	8805	8288	7825	7407	7026	6676
55	1·8159	1·4956	1·3133	1·1852	1·0865	1·0061	9383	8796	8279	7818	7401	7020	6670
56	1·8081	1·4918	1·3108	1·1834	1·0850	1·0049	9372	8787	8271	7811	7394	7014	6664
57	1·8004	1·4881	1·3083	1·1816	1·0835	1·0036	9362	8778	8263	7803	7387	7008	6659
58	1·7929	1·4844	1·3059	1·1797	1·0821	1·0024	9351	8769	8255	7796	7381	7002	6653
59	1·7855	1·4808	1·3034	1·1779	1·0806	1·0012	9341	8760	8247	7789	7374	6996	6648
60	1·7782	1·4771	1·3010	1·1761	1·0792	1·0000	9331	8751	8239	7782	7368	6990	6642

′	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
″	780	840	900	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	1620
0	6642	6320	6021	5740	5477	5229	4994	4771	4559	4357	4164	3979	3802	3632	3468
1	6637	6315	6016	5736	5473	5225	4990	4768	4556	4354	4161	3976	3799	3629	3465
2	6631	6310	6011	5731	5469	5221	4986	4764	4552	4351	4158	3973	3796	3626	3463
3	6625	6305	6006	5727	5464	5217	4983	4760	4549	4347	4155	3970	3793	3623	3460
4	6620	6300	6001	5722	5460	5213	4979	4757	4546	4344	4152	3967	3791	3621	3457
5	6614	6294	5997	5718	5456	5209	4975	4753	4542	4341	4149	3964	3788	3618	3454
6	6609	6289	5992	5713	5452	5205	4971	4750	4539	4338	4145	3961	3785	3615	3452
7	6603	6284	5987	5709	5447	5201	4967	4746	4535	4334	4142	3958	3782	3612	3449
8	6598	6279	5982	5704	5443	5197	4964	4742	4532	4331	4139	3955	3779	3610	3446
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3	1442	1342	1245	1149	1056	0965	0875	0787	0702	0617	0535	0454	0374	0296	0219
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25	1405	1306	1209	1115	1022	0932	0843	0756	0670	0587	0505	0424	0345	0267	0191
26	1403	1304	1208	1113	1021	0930	0841	0754	0669	0585	0503	0423	0344	0266	0190
27	1402	1303	1206	1112	1019	0929	0840	0753	0668	0584	0502	0422	0342	0265	0189
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29	1398	1300	1203	1109	1016	0926	0837	0750	0665	0581	0499	0419	0340	0262	0186
30	1397	1298	1201	1107	1015	0924	0835	0749	0663	0580	0498	0418	0339	0261	0185
31	1395	1296	[illegible]	1105	1013	0923	0834	0747	0662	0579	0497	0416	0337	0260	0184
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38	1384	1285	1189	1095	1002	0912	0824	0737	0652	0569	0487	0407	0328	0251	0175
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43	1375	1277	1181	1087	0995	0905	0816	0730	0645	0562	0480	0400	0322	0244	0169
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46	1370	1272	1176	1082	0990	0900	0812	0726	0641	0558	0476	0396	0318	0241	0165
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49	1365	1267	1171	1078	0986	0896	0808	0721	0637	0554	0472	0392	0314	0237	0161
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51	1362	1264	1168	1074	0983	0893	0805	0719	0634	0551	0470	0390	0311	0234	0158
52	1360	1262	1167	1073	0981	0891	0803	0717	0633	0550	0468	0388	0310	0233	0157
53	1359	1261	1165	1071	0980	0890	0802	0716	0631	0548	0467	0387	0309	0232	0156
54	1357	1259	1163	1070	0978	0888	0801	0714	0630	0547	0466	0386	0307	0230	0155
55	1355	1257	1162	1068	0977	0887	0799	0713	0628	0546	0464	0384	0306	0229	0153
56	1354	1256	1160	1067	0975	0885	0798	0711	0627	0544	0463	0383	0305	0228	0152
57	1352	1254	1159	1065	0974	0884	0796	0710	0626	0543	0462	0382	0304	0227	0151
58	1350	1253	1157	1064	0972	0883	0795	0709	0624	0541	0460	0381	0302	0225	0150
59	1349	1251	1156	1062	0971	0881	0793	0707	0623	0540	0459	0379	0301	0224	0148
60	1347	1249	1154	1061	0969	0880	0792	0706	0621	0539	0458	0378	0300	0223	0147

′	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
″	3480	3540	3600	3660	3720	3780	3840	3900	3960	4020	4080	4140	4200	4260	4320
0	0147	0073		9928	9858	9788	9720	9652	9586	9521	9456	9393	9331	9269	9208
1	0146	0072	9999	9927	9856	9787	9719	9651	9585	9520	9455	9392	9329	9268	9207
2	0145	0071	9998	9926	9855	9786	9717	9650	9584	9519	9454	9391	9328	9267	9206
3	0144	0069	9996	9925	9854	9785	9716	9649	9583	9518	9453	9390	9327	9266	9205
4	0142	0068	9995	9923	9853	9784	9715	9648	9582	9516	9452	9389	9326	9265	9204
5	0141	0067	9994	9922	9852	9782	9714	9647	9581	9515	9451	9388	9325	9264	9203
6	0140	0066	9993	9921	9851	9781	9713	9646	9579	9514	9450	9387	9324	9263	9202
7	0139	0064	9992	9920	9849	9780	9712	9645	9578	9513	9449	9386	9323	9262	9201
8	0137	0063	9990	9919	9848	9779	9711	9644	9577	9512	9448	9385	9322	9261	9200
9	0136	0062	9989	9918	9847	9778	9710	9642	9576	9511	9447	9384	9321	9260	9199
10	0135	0061	9988	9916	9846	9777	9708	9641	9575	9510	9446	9383	9320	9259	9198
11	0134	0060	9987	9915	9845	9775	9707	9640	9574	9509	9445	9381	9319	9258	9197
12	0132	0058	9985	9914	9844	9774	9706	9639	9573	9508	9444	9380	9318	9257	9196
13	0131	0057	9984	9913	9842	9773	9705	9638	9572	9507	9443	9379	9317	9256	9195
14	0130	0056	9983	9912	9841	9772	9704	9637	9571	9506	9442	9378	9316	9255	9194
15	0129	0055	9982	9910	9840	9771	9703	9636	9570	9505	9440	9377	9315	9254	9193
16	0127	0053	9981	9909	9839	9770	9702	9635	9569	9504	9439	9376	9314	9253	9192
17	0126	0052	9980	9908	9838	9769	9701	9633	9567	9502	9438	9375	9313	9252	9191
18	0125	0051	9978	9907	9837	9767	9699	9632	9566	9501	9437	9374	9312	9251	9190
19	0124	0050	9977	9906	9835	9766	9698	9631	9565	9500	9436	9373	9311	9250	9189
20	0122	0049	9976	9905	9834	9765	9697	9630	9564	9499	9435	9372	9310	9249	9188
21	0121	0047	9975	9903	9833	9764	9696	9629	9563	9498	9434	9371	9309	9248	9187
22	0120	0046	9974	9902	9832	9763	9695	9628	9562	9497	9433	9370	9308	9247	9186
23	0119	0045	9972	9901	9831	9762	9694	9627	9561	9496	9432	9369	9307	9246	9185
24	0117	0044	9971	9900	9830	9761	9693	9626	9560	9495	9431	9368	9306	9245	9184
25	0116	0042	9970	9899	9829	9759	9692	9625	9559	9494	9430	9367	9305	9244	9183
26	0115	0041	9969	9897	9827	9758	9690	9624	9558	9493	9429	9366	9304	9243	9182
27	0114	0040	9968	9896	9826	9757	9689	9622	9557	9492	9428	9365	9303	9241	9181
28	0112	0039	9966	9895	9825	9756	9688	9621	9555	9491	9427	9364	9302	9240	9180
29	0111	0038	9965	9894	9824	9755	9687	9620	9554	9490	9426	9363	9301	9239	9179
30	0110	0036	9964	9893	9823	9754	9686	9619	9553	9488	9425	9362	9300	9238	9178
31	0109	0035	9963	9892	9822	9753	9685	9618	9552	9487	9424	9361	9299	9237	9177
32	0107	0034	9962	9890	9820	9751	9684	9617	9551	9486	9422	9360	9298	9236	9176
33	0106	0033	9960	9889	9819	9750	9683	9616	9550	9485	9421	9359	9297	9235	9175
34	0105	0031	9959	9888	9818	9749	9681	9615	9549	9484	9420	9358	9296	9234	9174
35	0104	0030	9958	9887	9817	9748	9680	9614	9548	9483	9419	9356	9294	9233	9173
36	0103	0029	9957	9886	9816	9747	9679	9612	9547	9482	9418	9355	9293	9232	9172
37	0101	0028	9956	9885	9815	9746	9678	9611	9546	9481	9417	9354	9292	9231	9171
38	0100	0027	9954	9883	9813	9745	9677	9610	9545	9480	9416	9353	9291	9230	9170
39	0099	0025	9953	9882	9812	9744	9676	9609	9544	9479	9415	9352	9290	9229	9169
40	0098	0024	9952	9881	9811	9742	9675	9608	9542	9478	9414	9351	9289	9228	9168
41	0096	0023	9951	9880	9810	9741	9674	9607	9541	9477	9413	9350	9288	9227	9167
42	0095	0022	9950	9879	9809	9740	9672	9606	9540	9476	9412	9349	9287	9226	9166
43	0094	0021	9948	9877	9808	9739	9671	9605	9539	9475	9411	9348	9286	9225	9165
44	0093	0019	9947	9876	9807	9738	9670	9604	9538	9473	9410	9347	9285	9224	9164
45	0091	0018	9946	9875	9805	9737	9669	9603	9537	9472	9409	9346	9284	9223	9163
46	0090	0017	9945	9874	9804	9736	9668	9601	9536	9471	9408	9345	9283	9222	9162
47	0089	0016	9944	9873	9803	9734	9667	9600	9535	9470	9407	9344	9282	9221	9161
48	0088	0015	9942	9872	9802	9733	9666	9599	9534	9469	9406	9343	9281	9220	9160
49	0087	0013	9941	9870	9801	9732	9665	9598	9533	9468	9405	9342	9280	9219	9159
50	0085	0012	9940	9869	9800	9731	9664	9597	9532	9467	9404	9341	9279	9218	9158
51	0084	0011	9939	9868	9798	9730	9662	9596	9530	9466	9402	9340	9278	9217	9157
52	0083	0010	9938	9867	9797	9729	9661	9595	9529	9465	9401	9339	9277	9216	9156
53	0082	0008	9937	9866	9796	9728	9660	9594	9528	9464	9400	9338	9276	9215	9155
54	0080	0007	9935	9865	9795	9727	9659	9593	9527	9463	9399	9337	9275	9214	9154
55	0079	0006	9934	9863	9794	9725	9658	9592	9526	9462	9398	9336	9274	9213	9153
56	0078	0005	9933	9862	9793	9724	9657	9590	9525	9461	9397	9335	9273	9212	9152
57	0077	0004	9932	9861	9792	9723	9656	9589	9524	9460	9396	9334	9272	9211	9151
58	0075	0002	9931	9860	9790	9722	9655	9588	9523	9459	9395	9333	9271	9210	9150
59	0074	0001	9929	9859	9789	9721	9653	9587	9522	9457	9394	9332	9270	9209	9149
60	0073	0000	9928	9858	9788	9720	9652	9586	9521	9456	9393	9331	9269	9208	9148

	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87
"	4380	4440	4500	4560	4620	4680	4740	4800	4860	4920	4980	5040	5100	5160	5220
0	9148	9089	9031	8973	8917	8861	8805	8751	8697	8643	8591	8539	8487	8437	8386
1	9147	9088	9030	8972	8916	8860	8804	8750	8696	8642	8590	8538	8486	8436	8385
2	9146	9087	9029	8971	8915	8859	8803	8749	8695	8642	8589	8537	8486	8435	8385
3	9145	9086	9028	8971	8914	8858	8802	8748	8694	8641	8588	8536	8485	8434	8384
4	9144	9085	9027	8970	8913	8857	8802	8747	8693	8640	8587	8535	8484	8433	8383
5	9143	9084	9026	8969	8912	8856	8801	8746	8692	8639	8586	8534	8483	8432	8382
6	9142	9083	9025	8968	8911	8855	8800	8745	8691	8638	8585	8534	8482	8431	8381
7	9141	9082	9024	8967	8910	8854	8799	8744	8690	8637	8585	8533	8481	8431	8380
8	9140	9081	9023	8966	8909	8853	8798	8743	8689	8636	8584	8532	8481	8430	8380
9	9139	9080	9022	8965	8908	8852	8797	8743	8689	8635	8583	8531	8480	8429	8379
10	9138	9079	9021	8964	8907	8851	8796	8742	8688	8635	8582	8530	8479	8428	8378
11	9137	9078	9020	8963	8906	8850	8795	8741	8687	8634	8581	8529	8478	8427	8377
12	9136	9077	9019	8962	8905	8849	8794	8740	8686	8633	8580	8528	8477	8426	8376
13	9135	9076	9018	8961	8904	8849	8793	8739	8685	8632	8579	8528	8476	8426	8376
14	9134	9076	9017	8960	8903	8848	8792	8738	8684	8631	8579	8527	8475	8425	8375
15	9133	9075	9016	8959	8903	8847	8792	8737	8683	8630	8578	8526	8475	8424	8374
16	9132	9074	9015	8958	8902	8846	8791	8736	8682	8629	8577	8525	8474	8423	8373
17	9131	9073	9015	8957	8901	8845	8790	8735	8681	8628	8576	8524	8473	8422	8372
18	9130	9072	9014	8956	8900	8844	8789	8734	8681	8627	8575	8523	8472	8421	8371
19	9129	9071	9013	8955	8899	8843	8788	8733	8680	8627	8574	8522	8471	8421	8371
20	9128	9070	9012	8954	8898	8842	8787	8733	8679	8626	8573	8522	8470	8420	8370
21	9128	9069	9011	8953	8897	8841	8786	8732	8678	8625	8572	8521	8469	8419	8369
22	9127	9068	9010	8952	8896	8840	8785	8731	8677	8624	8572	8520	8469	8418	8368
23	9126	9067	9009	8952	8895	8839	8784	8729	8676	8623	8571	8519	8468	8417	8367
24	9125	9066	9008	8951	8894	8838	8783	8729	8675	8622	8570	8518	8467	8416	8366
25	9124	9065	9007	8950	8893	8837	8782	8728	8674	8621	8569	8517	8466	8416	8366
26	9123	9064	9006	8949	8892	8837	8781	8727	8673	8620	8568	8516	8465	8415	8365
27	9122	9063	9005	8948	8891	8836	8781	8726	8673	8620	8567	8515	8464	8414	8364
28	9121	9062	9004	8947	8890	8835	8780	8725	8672	8619	8566	8515	8464	8413	8363
29	9120	9061	9003	8946	8889	8834	8779	8724	8671	8618	8565	8514	8463	8412	8362
30	9119	9060	9002	8945	8888	8833	8778	8724	8670	8617	8565	8513	8462	8411	8361
31	9118	9059	9001	8944	8888	8832	8777	8723	8669	8616	8564	8512	8461	8410	8361
32	9117	9058	9000	8943	8887	8831	8776	8722	8668	8615	8563	8511	8460	8410	8360
33	9116	9057	8999	8942	8886	8830	8775	8721	8667	8614	8562	8510	8459	8409	8359
34	9115	9056	8998	8941	8885	8829	8774	8720	8666	8613	8561	8510	8458	8408	8358
35	9114	9055	8997	8940	8884	8828	8773	8719	8665	8613	8560	8509	8458	8407	8357
36	9113	9054	8996	8939	8883	8827	8772	8718	8665	8612	8559	8508	8457	8406	8356
37	9112	9053	8995	8938	8882	8826	8771	8717	8664	8611	8559	8507	8456	8405	8356
38	9111	9052	8994	8937	8881	8825	8771	8716	8663	8610	8558	8506	8455	8405	8355
39	9110	9051	8993	8936	8880	8825	8770	8715	8662	8609	8557	8505	8454	8404	8354
40	9109	9050	8992	8935	8879	8824	8769	8715	8661	8608	8556	8504	8453	8403	8353
41	9108	9049	8992	8935	8878	8823	8768	8714	8660	8607	8555	8504	8453	8402	8352
42	9107	9048	8991	8934	8877	8822	8767	8713	8659	8606	8554	8503	8452	8401	8351
43	9106	9047	8990	8933	8876	8821	8766	8712	8658	8606	8553	8502	8451	8400	8351
44	9105	9046	8989	8932	8875	8820	8765	8710	8657	8605	8553	8501	8450	8400	8350
45	9104	9045	8988	8931	8875	8819	8764	8710	8657	8604	8552	8500	8449	8399	8349
46	9103	9044	8987	8930	8874	8818	8763	8709	8656	8603	8551	8499	8448	8398	8348
47	9102	9043	8986	8929	8873	8817	8762	8708	8655	8602	8550	8498	8447	8397	8347
48	9101	9042	8985	8928	8872	8816	8761	8707	8654	8601	8549	8498	8447	8396	8347
49	9100	9042	8984	8927	8871	8815	8761	8706	8653	8600	8548	8497	8446	8395	8346
50	9099	9041	8983	8926	8870	8814	8760	8705	8652	8599	8547	8496	8445	8395	8345
51	9098	9040	8982	8925	8869	8813	8759	8704	8651	8599	8546	8495	8444	8394	8344
52	9097	9039	8981	8924	8868	8813	8758	8703	8650	8598	8546	8494	8443	8393	8343
53	9096	9038	8980	8923	8867	8812	8757	8702	8650	8597	8545	8493	8442	8392	8342
54	9095	9037	8979	8922	8866	8811	8756	8702	8649	8596	8544	8492	8442	8391	8342
55	9094	9036	8978	8921	8865	8810	8755	8701	8648	8595	8543	8492	8441	8390	8341
56	9093	9035	8977	8920	8864	8809	8754	8700	8647	8594	8542	8491	8440	8390	8340
57	9092	9034	8976	8919	8863	8808	8753	8699	8646	8593	8541	8490	8439	8389	8339
58	9091	9033	8975	8918	8862	8807	8752	8698	8645	8592	8540	8489	8438	8388	8338
59	9090	9032	8974	8918	8861	8806	8752	8697	8644	8592	8540	8488	8437	8387	8338
60	9089	9031	8973	8917	8861	8805	8751	8697	8643	8591	8539	8487	8437	8386	8337

TABLE IX.

LOGARITHMIC
SINES AND TANGENTS

TO

EVERY SECOND

IN THE FIRST TWO DEGREES.

″	0′	1′	2′	3′	4′	5′	6′	7′	″
0		6·4637261	6·7647561	6·9408473	7·0657860	7·1626960	7·2418771	7·3088239	60
1	4·6855749	6·4709647	6·7683602	6·9432584	7·0675918	7·1641412	7·2430818	7·3098567	59
2	4·9866049	6·4779665	6·7719447	6·9456462	7·0693901	7·1655817	7·2442832	7·3108870	58
3	5·1626961	6·4849154	6·7754800	6·9480259	7·0711810	7·1670173	7·2454813	7·3119149	57
4	5·2876349	6·4917548	6·7789965	6·9503926	7·0729646	7·1684481	7·2466700	7·3129404	56
5	5·3845449	6·4984882	6·7824849	6·9527465	7·0747408	7·1698745	7·2478675	7·3139635	55
6	5·4637261	6·5051188	6·7859454	6·9550878	7·0765099	7·1712961	7·2490557	7·3149842	54
7	5·5306729	6·5116497	6·7893786	6·9574164	7·0782717	7·1727131	7·2502407	7·3160024	53
8	5·5886649	6·5180838	6·7927848	6·9597327	7·0800264	7·1741254	7·2514225	7·3170183	52
9	5·6398174	6·5244239	6·7961645	6·9620366	7·0817741	7·1755332	7·2526010	7·3180318	51
10	5·6855749	6·5306729	6·7995182	6·9643284	7·0835148	7·1769364	7·2537764	7·3190430	50
11	5·7269676	6·5368332	6·8028461	6·9666082	7·0852485	7·1783351	7·2549485	7·3200518	49
12	5·7647561	6·5429074	6·8061488	6·9688760	7·0869753	7·1797293	7·2561176	7·3210583	48
13	5·7995182	6·5488977	6·8094265	6·9711321	7·0886953	7·1811190	7·2572835	7·3220624	47
14	5·8317029	6·5548066	6·8126796	6·9733765	7·0904085	7·1825043	7·2584462	7·3230643	46
15	5·8616661	6·5606361	6·8159086	6·9756094	7·0921149	7·1838853	7·2596059	7·3240638	45
16	5·8896948	6·5663884	6·8191137	6·9778309	7·0938147	7·1852618	7·2607625	7·3250610	44
17	5·9160238	6·5720656	6·8222954	6·9800410	7·0955079	7·1866340	7·2619160	7·3260560	43
18	5·9408474	6·5776695	6·8254539	6·9822400	7·0971945	7·1880018	7·2630664	7·3270487	42
19	5·9643285	6·5832019	6·8285896	6·9844279	7·0988745	7·1893654	7·2642138	7·3280391	41
20	5·9866049	6·5886648	6·8317029	6·9866048	7·1005481	7·1907247	7·2653582	7·3290272	40
21	6·0077942	6·5940599	6·8347939	6·9887709	7·1022153	7·1920797	7·2664996	7·3300131	39
22	6·0279975	6·5993887	6·8378632	6·9909262	7·1038760	7·1934306	7·2676380	7·3309968	38
23	6·0473027	6·6046529	6·8409109	6·9930708	7·1055305	7·1947772	7·2687734	7·3319782	37
24	6·0657861	6·6098541	6·8439373	6·9952050	7·1071787	7·1961197	7·2699058	7·3329575	36
25	6·0835149	6·6149938	6·8469428	6·9973287	7·1088206	7·1974580	7·2710353	7·3339345	35
26	6·1005482	6·6200734	6·8499277	6·9994420	7·1104564	7·1987924	7·2721619	7·3349094	34
27	6·1169390	6·6250941	6·8528927	7·0015451	7·1120860	7·2001224	7·2732856	7·3358821	33
28	6·1327329	6·6300573	6·8558365	7·0036381	7·1137095	7·2014485	7·2744063	7·3368526	32
29	6·1479729	6·6349649	6·8587611	7·0057211	7·1153270	7·2027700	7·2755242	7·3378209	31
30	6·1626951	6·6398174	6·8616661	7·0077941	7·1169385	7·2040886	7·2766392	7·3387870	30
31	6·1769366	6·6446162	6·8645518	7·0098572	7·1185440	7·2054027	7·2777514	7·3397511	29
32	6·1907248	6·6493627	6·8674184	7·0119107	7·1201436	7·2067128	7·2788607	7·3407130	28
33	6·2040888	6·6540578	6·8702663	7·0139544	7·1217374	7·2080189	7·2799672	7·3416727	27
34	6·2170538	6·6587027	6·8730955	7·0159886	7·1233253	7·2093211	7·2810708	7·3426304	26
35	6·2296429	6·6632985	6·8759065	7·0180132	7·1249074	7·2106195	7·2821717	7·3435859	25
36	6·2418774	6·6678461	6·8786994	7·0200285	7·1264838	7·2119140	7·2832698	7·3445394	24
37	6·2537766	6·6723466	6·8814744	7·0220345	7·1280545	7·2132046	7·2843651	7·3454907	23
38	6·2653585	6·6768009	6·8842319	7·0240313	7·1296195	7·2144914	7·2854577	7·3464400	22
39	6·2766397	6·6812100	6·8869719	7·0260189	7·1311789	7·2157744	7·2865475	7·3473872	21
40	6·2876349	6·6855748	6·8896948	7·0279975	7·1327328	7·2170536	7·2876346	7·3483323	20
41	6·2983587	6·6898962	6·8924007	7·0299671	7·1342811	7·2183290	7·2887190	7·3492754	19
42	6·3088242	6·6941751	6·8950898	7·0319278	7·1358238	7·2196008	7·2898006	7·3502165	18
43	6·3190433	6·6984121	6·8977624	7·0338796	7·1373612	7·2208688	7·2908796	7·3511556	17
44	6·3290275	6·7026082	6·9004187	7·0358228	7·1388931	7·2221331	7·2919560	7·3520926	16
45	6·3387874	6·7067641	6·9030588	7·0377573	7·1404196	7·2233938	7·2930296	7·3530276	15
46	6·3483327	6·7108807	6·9056829	7·0396832	7·1419408	7·2246509	7·2941006	7·3539607	14
47	6·3576727	6·7149586	6·9082913	7·0416006	7·1434566	7·2259041	7·2951690	7·3548917	13
48	6·3668161	6·7189986	6·9108841	7·0435096	7·1449672	7·2271539	7·2962347	7·3558208	12
49	6·3757709	6·7230013	6·9134615	7·0454103	7·1464726	7·2284001	7·2972979	7·3567[illegible]	
50	6·3845449	6·7269675	6·9160237	7·0473026	7·1479727	7·2296427	7·2983584	[illegible]	
51	6·3931450	6·7308978	6·9185709	7·0491868	7·1494677	7·2308818	7·2994164	[illegible]	
52	6·4015782	6·7347929	6·9211033	7·0510628	7·1509576	7·2321173	7·3004718	[illegible]	
53	6·4098507	6·7386533	6·9236209	7·0529307	7·1524423	7·2333494	7·3015246	7·3604756	
54	6·4179686	6·7424797	6·9261241	7·0547906	7·1539221	7·2345779	7·3025749	[illegible]	
55	6·4259376	6·7462727	6·9286129	7·0566426	7·1553967	7·2358030	7·3036227	[illegible]	
56	6·4337628	6·7500328	6·9310875	7·0584868	7·1568664	7·2370246	7·3046679	[illegible]	
57	6·4414497	6·7537607	6·9335481	7·0603231	7·1583312	7·2382429	7·3057106	[illegible]	
58	6·4490029	6·7574569	6·9359948	7·0621517	7·1597910	7·2394577	7·3067509	[illegible]	
59	6·4564269	6·7611218	6·9384278	7·0639727	7·1612459	7·2406691	7·3077886	[illegible]	
60	6·4637261	6·7647561	6·9408473	7·0657860	7·1626960	7·2418771	7·3088239	[illegible]	
″	59′	58′	57′	56′	55′	54′	53′	52′	″

″	0′	1′	2′	3′	4′	5′	6′	7′	″
0		6·4637261	6·7647562	6·9408475	7·0657863	7·1626964	7·2418778	7·3088248	60
1	4·6855749	6·4709047	6·7683603	6·9432536	7·0675921	7·1641417	7·2430825	7·3098576	59
2	4·9866049	6·4779666	6·7719347	6·9456464	7·0693904	7·1655821	7·2442839	7·3108879	58
3	5·1626961	6·4849154	6·7754800	6·9480261	7·0711813	7·1670178	7·2454819	7·3119158	57
4	5·2876149	6·4917549	6·7789966	6·9503928	7·0729649	7·1684488	7·2466767	7·3129413	56
5	5·3845449	6·4984882	6·7824849	6·9527467	7·0747412	7·1698750	7·2478682	7·3139644	55
6	5·4637261	6·5051188	6·7859455	6·9550879	7·0765102	7·1712966	7·2490564	7·3149851	54
7	5·5306729	6·5116497	6·7893786	6·9574166	7·0782720	7·1727136	7·2502414	7·3160034	53
8	5·5886649	6·5180838	6·7927849	6·9597328	7·0800268	7·1741259	7·2514231	7·3170193	52
9	5·6398174	6·5244240	6·7961646	6·9620368	7·0817744	7·1755337	7·2526017	7·3180328	51
10	5·6855749	6·5306729	6·7995183	6·9643286	7·0835151	7·1769369	7·2537771	7·3190440	50
11	5·7269676	6·5368332	6·8028462	6·9666084	7·0852488	7·1783356	7·2549494	7·3200528	49
12	5·7647561	6·5429074	6·8061489	6·9688762	7·0869756	7·1797298	7·2561185	7·3210592	48
13	5·7995182	6·5488977	6·8094266	6·9711323	7·0886956	7·1811195	7·2572847	7·3220634	47
14	5·8317029	6·5548066	6·8126797	6·9733767	7·0904088	7·1825049	7·2584469	7·3230652	46
15	5·8616661	6·5606361	6·8159087	6·9756096	7·0921153	7·1838858	7·2596066	7·3240648	45
16	5·8896948	6·5663885	6·8191138	6·9778311	7·0938151	7·1852623	7·2607632	7·3250620	44
17	5·9160238	6·5720656	6·8222955	6·9800412	7·0955082	7·1866345	7·2619167	7·3260570	43
18	5·9408474	6·5776695	6·8254540	6·9822402	7·0971948	7·1880024	7·2630672	7·3270496	42
19	5·9643285	6·5832020	6·8285897	6·9844281	7·0988749	7·1893659	7·2642146	7·3280400	41
20	5·9866049	6·5886649	6·8317030	6·9866050	7·1005484	7·1907252	7·2653590	7·3290282	40
21	6·0077942	6·5940599	6·8347940	6·9887711	7·1022156	7·1920802	7·2665003	7·3300141	39
22	6·0279975	6·5993887	6·8378633	6·9909264	7·1038764	7·1934311	7·2676387	7·3309978	38
23	6·0473027	6·6046530	6·8409110	6·9930710	7·1055309	7·1947777	7·2687741	7·3319793	37
24	6·0657861	6·6098542	6·8439374	6·9952052	7·1071790	7·1961202	7·2699066	7·3329585	36
25	6·0835149	6·6149938	6·8469429	6·9973289	7·1088210	7·1974586	7·2710361	7·3339356	35
26	6·1005482	6·6200733	6·8499278	6·9994422	7·1104567	7·1987928	7·2721627	7·3349104	34
27	6·1169386	6·6250941	6·8528923	7·0015454	7·1120864	7·2001230	7·2732863	7·3358831	33
28	6·1327379	6·6300576	6·8558367	7·0036383	7·1137099	7·2014491	7·2744071	7·3368536	32
29	6·1479720	6·6349649	6·8587612	7·0057213	7·1153274	7·2027711	7·2755250	7·3378219	31
30	6·1626961	6·6398174	6·8616661	7·0077943	7·1169389	7·2040892	7·2766400	7·3387881	30
31	6·1769366	6·6446163	6·8645510	7·0098575	7·1185444	7·2054032	7·2777521	7·3397521	29
32	6·1907248	6·6493627	6·8674185	7·0119109	7·1201440	7·2067133	7·2788615	7·3407140	28
33	6·2040888	6·6540578	6·8702664	7·0139546	7·1217378	7·2080195	7·2799679	7·3416738	27
34	6·2170538	6·6587027	6·8730957	7·0159888	7·1233257	7·2093217	7·2810716	7·3426314	26
35	6·2296429	6·6632985	6·8759066	7·0180135	7·1249078	7·2106201	7·2821725	7·3435870	25
36	6·2418774	6·6678461	6·8786995	7·0200288	7·1264842	7·2119145	7·2832706	7·3445404	24
37	6·2537766	6·6723466	6·8814746	7·0220348	7·1280549	7·2132052	7·2843659	7·3454918	23
38	6·2653585	6·6768010	6·8842320	7·0240315	7·1296199	7·2144920	7·2854585	7·3464411	22
39	6·2766395	6·6812101	6·8869721	7·0260191	7·1311793	7·2157750	7·2865484	7·3473883	21
40	6·2876349	6·6855749	6·8896949	7·0279977	7·1327332	7·2170542	7·2876354	7·3483334	20
41	6·2983587	6·6898963	6·8924008	7·0299673	7·1342815	7·2183296	7·2887198	7·3492765	19
42	6·3088242	6·6941751	6·8950900	7·0319280	7·1358242	7·2196014	7·2898015	7·3502176	18
43	6·3190433	6·6984121	6·8977626	7·0338799	7·1373616	7·2208694	7·2908805	7·3511566	17
44	6·3290275	6·7026082	6·9004188	7·0358231	7·1388935	7·2221337	7·2919568	7·3520936	16
45	6·3387874	6·7067642	6·9030589	7·0377576	7·1404200	7·2233944	7·2930304	7·3530286	15
46	6·3483327	6·7108808	6·9056830	7·0396835	7·1419412	7·2246514	7·2941015	7·3539615	14
47	6·3576727	6·7149587	6·9082914	7·0416009	7·1434570	7·2259048	7·2951698	7·3548925	13
48	6·3668161	6·7189987	6·9108842	7·0435099	7·1449676	7·2271545	7·2962356	7·3558215	12
49	6·3757709	6·7230014	6·9134617	7·0454105	7·1464730	7·2284007	7·2972987	7·3567485	11
50	6·3845449	6·7269676	6·9160239	7·0473029	7·1479732	7·2296433	7·2983593	7·3576735	10
51	6·3931450	6·7308979	6·9185711	7·0491870	7·1494681	7·2308824	7·2994173	7·3585965	9
52	6·4015782	6·7347929	6·9211034	7·0510630	7·1509580	7·2321180	7·3004727	7·3595176	8
53	6·4098507	6·7386534	6·9236211	7·0529310	7·1524428	7·2333500	7·3015255	7·3604368	7
54	6·4179686	6·7424798	6·9261242	7·0547909	7·1539225	7·2345785	7·3025758	7·3613540	6
55	6·4259376	6·7462728	6·9286130	7·0566429	7·1553972	7·2358036	7·3036235	7·3622692	5
56	6·4337629	6·7500329	6·9310876	7·0584871	7·1568669	7·2370253	7·3046688	7·3631826	4
57	6·4414497	6·7537608	6·9335482	7·0603234	7·1583316	7·2382435	7·3057115	7·3640940	3
58	6·4490029	6·7574570	6·9359950	7·0621520	7·1597914	7·2394583	7·3067517	7·3650035	2
59	6·4564269	6·7611219	6·9384280	7·0639730	7·1612464	7·2406698	7·3077895	7·3659112	1
60	6·4637261	6·7647562	6·9408475	7·0657863	7·1626964	7·2418778	7·3088248	7·3668169	0
″	59′	58′	57′	56	55′	54′	53′	52	″

″	8′	9	10′	11′	12′	13′	14′	15′	″
0	7·3668157	7·4179681	7·4637255	7·5051181	7·5429065	7·5776684	7·6098530	7·6398160	60
1	7·3677195	7·4187716	7·4644487	7·5057756	7·5435092	7·5782249	7·6103697	7·6402983	59
2	7·3686215	7·4195737	7·4651707	7·5064327	7·5441112	7·5787806	7·6108858	7·6407800	58
3	7·3695216	7·420374	7·4658916	7·5070876	7·5447123	7·5793356	7·6114012	7·6412612	57
4	7·3704198	7·4211733	7·4666112	7·5077422	7·5453125	7·5798899	7·6119161	7·6417419	56
5	7·3713162	7·4219709	7·4673296	7·5083958	7·5459120	7·5804435	7·6124304	7·6422221	55
6	7·3722107	7·4227670	7·4680469	7·5090483	7·5465106	7·5809964	7·6129440	7·6427017	54
7	7·3731034	7·4235617	7·4687629	7·5096999	7·5471084	7·5815485	7·6134571	7·6431808	53
8	7·3739943	7·4243549	7·4694778	7·5103506	7·5477053	7·5821000	7·6139695	7·6436593	52
9	7·3748832	7·4251467	7·4701915	7·5110002	7·5483015	7·5826508	7·6144813	7·6441373	51
10	7·3757705	7·4259370	7·4709041	7·5116489	7·5488968	7·5832009	7·6149926	7·6446149	50
11	7·3766559	7·4267259	7·4716154	7·5122966	7·5494913	7·5837503	7·6155032	7·6450918	49
12	7·3775396	7·4275134	7·4723257	7·5129434	7·5500850	7·5842990	7·6160132	7·6455683	48
13	7·3784214	7·4282995	7·4730347	7·5135892	7·5506779	7·5848470	7·6165227	7·6460442	47
14	7·3793014	7·4290841	7·4737426	7·5142340	7·5512700	7·5853943	7·6170315	7·6465196	46
15	7·3801795	7·4298674	7·4744494	7·5148779	7·5518613	7·5859409	7·6175397	7·6469945	45
16	7·3810561	7·4306491	7·4751549	7·5155208	7·5524518	7·5864869	7·6180474	7·6474689	44
17	7·3819308	7·4314295	7·4758594	7·5161628	7·5530414	7·5870321	7·6185544	7·6479428	43
18	7·3828038	7·4322085	7·4765627	7·5168038	7·5536303	7·5875767	7·6190609	7·6484161	42
19	7·3836750	7·4329861	7·4772649	7·5174439	7·5542184	7·5881206	7·6195668	7·6488892	41
20	7·3845444	7·4337624	7·4779659	7·5180830	7·5548057	7·5886638	7·6200721	7·6493613	40
21	7·3854122	7·4345372	7·4786658	7·5187212	7·5553921	7·5892064	7·6205768	7·6498331	39
22	7·3862782	7·4353106	7·4793646	7·5193585	7·5559778	7·5897481	7·6210809	7·6503043	38
23	7·3871424	7·4360827	7·4800623	7·5199948	7·5565627	7·5902893	7·6215844	7·6507751	37
24	7·3880050	7·4368534	7·4807588	7·5206302	7·5571469	7·5908298	7·6220873	7·6512454	36
25	7·3888658	7·4376228	7·4814542	7·5212646	7·5577302	7·5913696	7·6225897	7·6517151	35
26	7·3897249	7·4383908	7·4821485	7·5218982	7·5583127	7·5919088	7·6230915	7·6521844	34
27	7·3905824	7·4391574	7·4828417	7·5225308	7·5588945	7·5924473	7·6235927	7·6526531	33
28	7·3914381	7·4399227	7·4835338	7·5231625	7·5594755	7·5929851	7·6240933	7·6531214	32
29	7·3922922	7·4406866	7·4842248	7·5237933	7·5600557	7·5935223	7·6245934	7·6535891	31
30	7·3931446	7·4414492	7·4849147	7·5244231	7·5606352	7·5940588	7·6250928	7·6540563	30
31	7·3939951	7·4422104	7·4856035	7·5250521	7·5612138	7·5945946	7·6255917	7·6545231	29
32	7·3948444	7·4429703	7·4862913	7·5256801	7·5617917	7·5951298	7·6260901	7·6549893	28
33	7·3956918	7·4437289	7·4869779	7·5263072	7·5623689	7·5956643	7·6265878	7·6554550	27
34	7·3965375	7·4444862	7·4876634	7·5269335	7·5629452	7·5961981	7·6270850	7·6559203	26
35	7·3973816	7·4452421	7·4883479	7·5275588	7·5635208	7·5967313	7·6275816	7·6563850	25
36	7·3982241	7·4459968	7·4890313	7·5281833	7·5640957	7·5972639	7·6280777	7·6568492	24
37	7·3990650	7·4467501	7·4897136	7·5288068	7·5646698	7·5977958	7·6285732	7·6573130	23
38	7·3999042	7·4475021	7·4903949	7·5294295	7·5652431	7·5983270	7·6290681	7·6577762	22
39	7·4007418	7·4482529	7·4910750	7·5300512	7·5658157	7·5988576	7·6295624	7·6582390	21
40	7·4015778	7·4490023	7·4917541	7·5306721	7·5663875	7·5993876	7·6300562	[illegible]	20
41	7·4024121	7·4497504	7·4924322	7·5312920	7·5669585	7·5999169	7·6305495	7·6591630	19
42	7·4032449	7·450497	7·4931092	7·5319111	7·5675289	7·6004455	7·6310421	7·6596213	18
43	7·4040761	7·4512428	7·4937851	7·5325294	7·5680984	7·6009735	7·6315342	7·6600830	17
44	7·4049057	7·4519871	7·4944600	7·5331467	7·5686672	7·6015009	7·6320258	7·6605453	16
45	7·4057337	7·452730	7·4951339	7·5337631	7·5692353	7·6020277	7·6325168	7·6610052	15
46	7·4065601	7·4534719	7·4958067	7·5343787	7·5698026	7·6025538	7·6330073	7·6614645	14
47	7·4073850	7·4542124	7·4964784	7·5349934	7·5703692	7·6030792	7·6334971	7·6619233	13
48	7·4082083	7·4549516	7·4971492	7·5356074	7·5709351	7·6036040	7·6339865	7·6623817	12
49	7·4090301	7·4556895	7·4978188	7·5362202	7·5715002	7·6041282	7·6344753	7·6628395	11
50	7·4098503	7·4564263	7·4984875	7·5368324	7·5720646	7·6046518	7·6349635	7·6632969	10
51	7·4106689	7·4571618	7·4991551	7·5374436	7·5726282	7·6051747	7·6354512	[illegible]	9
52	7·4114860	7·4578960	7·4998217	7·5380540	7·5731912	7·6056970	7·6359384	[illegible]	8
53	7·4123016	7·4586290	7·5004873	7·5386635	7·5737533	7·6062187	7·6364250	[illegible]	7
54	7·4131156	7·4593607	7·5011519	7·5392722	7·5743148	7·6067397	7·6369110	[illegible]	6
55	7·4139282	7·460091	7·5018154	7·5398800	7·5748755	7·6072602	7·6373965	[illegible]	5
56	7·4147392	7·460820	7·5024780	7·5404870	7·5754356	7·6077800	7·6378815	[illegible]	4
57	7·4155487	7·4615480	7·5031395	7·5410931	7·5759949	7·6082993	7·6383659	[illegible]	3
58	7·4163567	7·4622754	7·5038000	7·5416984	7·5765534	7·6088177	7·6388498	[illegible]	2
59	7·417163	7·4630011	7·5044595	7·5423029	7·5771113	7·6093356	7·6393332	[illegible]	1
60	7·4179681	7·4637255	7·5051181	7·5429065	7·5776684	7·6098530	7·6398160	[illegible]	0
″	51′	50′	49′	48′	47′	46′	45′	44′	″

″	8′	9′	10′	11′	12′	13′	14′	15′	″
0	7·3688169	7·4179696	7·4637279	7·5051204	7·5429091	7·5776715	7·6098566	7·6398201	60
1	7·3677207	7·4187741	7·4644506	7·5057778	7·5435119	7·5782280	7·6103733	7·6403074	59
2	7·3698227	7·4195752	7·4651726	7·5064343	7·5441138	7·5787847	7·6108894	7·6407842	58
3	7·3695224	7·4203757	7·4658954	7·5070899	7·5447149	7·5793387	7·6114049	7·6412654	57
4	7·3704210	7·4211748	7·4666140	7·5077444	7·5453152	7·5799930	7·6119197	7·6417461	56
5	7·3713174	7·4219724	7·4673315	7·5083980	7·5459147	7·5804460	7·6124340	7·6422262	55
6	7·3722119	7·4227685	7·4680487	7·5090506	7·5465133	7·5809993	7·6129477	7·6427059	54
7	7·3731046	7·4235632	7·4687648	7·5097022	7·5471111	7·5815517	7·6134607	7·6431850	53
8	7·3739955	7·4243564	7·4694797	7·5103528	7·5477080	7·5821032	7·6139732	7·6436635	52
9	7·3748845	7·4251482	7·4701934	7·5110025	7·5483042	7·5826540	7·6144850	7·6441416	51
10	7·3757718	7·4259386	7·4709060	7·5116512	7·5488995	7·5832041	7·61[illegible]63	7·6446191	50
11	7·3766572	7·4267275	7·4716174	7·5122989	7·5494941	7·5837535	7·6155069	7·6450961	49
12	7·3775408	7·4275150	7·4723276	7·5129457	7·5500878	7·5843022	7·6160169	7·6455725	48
13	7·3784226	7·4283010	7·4730366	7·5135915	7·5506807	7·5848502	7·6165264	7·6460485	47
14	7·3793026	7·4290857	7·4737443	7·5142363	7·5512728	7·5853975	7·6170352	7·6465239	46
15	7·3801809	7·4298689	7·4744513	7·5148802	7·5518640	7·5859441	7·6175433	7·6469988	45
16	7·3810574	7·4306507	7·4751569	7·5155231	7·5524545	7·5864901	7·6180511	7·6474732	44
17	7·3819321	7·4314311	7·4758613	7·5161651	7·5530442	7·5870353	7·6185582	7·6479471	43
18	7·3828051	7·4322101	7·4765646	7·5168061	7·5536331	7·5875799	7·6190647	7·6484204	42
19	7·3836763	7·4329877	7·4772668	7·5174462	7·5542212	7·5881238	7·6195705	7·6488933	41
20	7·3845457	7·4337640	7·4779679	7·5180854	7·5548084	7·5886670	7·6200758	7·6493656	40
21	7·3854134	7·4345388	7·4786678	7·5187236	7·5553949	7·5892096	7·6205805	7·6498374	39
22	7·3862794	7·4353123	7·4793666	7·5193608	7·5559806	7·5897514	7·6210847	7·6503087	38
23	7·3871437	7·4360843	7·4800642	7·5199972	7·5565656	7·5902926	7·6215882	7·6507795	37
24	7·3880063	7·4368551	7·4807606	7·5206326	7·5571497	7·5908331	7·6220911	7·6512497	36
25	7·3888671	7·4376244	7·4814562	7·5212670	7·5577330	7·5913730	7·6225935	7·6517195	35
26	7·3897264	7·4383924	7·4821505	7·5219006	7·5583156	7·5919121	7·6230953	7·6521888	34
27	7·3905837	7·4391590	7·4828437	7·5225332	7·5588974	7·5924506	7·6235965	7·6526575	33
28	7·3914395	7·4399241	7·4835359	7·5231649	7·5594784	7·5929884	7·6240971	7·6531258	32
29	7·3922935	7·4406882	7·4842269	7·5237957	7·5600586	7·5935256	7·6245972	7·6535935	31
30	7·3931459	7·4414508	7·4849168	7·5244256	7·5606380	7·5940621	7·6250967	7·6540608	30
31	7·3939967	7·4422121	7·4856056	7·525054	7·5612167	7·5945980	7·6255956	7·6545275	29
32	7·3948457	7·4429720	7·4862933	7·5256826	7·5617946	7·5951331	7·6260939	7·6549937	28
33	7·3956911	7·4437306	7·4869799	7·5263097	7·5623717	7·5956677	7·6265912	7·6554595	27
34	7·3965380	7·4444879	7·4876655	7·5269360	7·5629481	7·5962011	7·6270889	7·6559247	26
35	7·3973830	7·4452438	7·4883500	7·5275614	7·5635238	7·5967347	7·6275855	7·6563895	25
36	7·3982255	7·4459985	7·4890334	7·5281858	7·5640986	7·5972671	7·6280816	7·6568537	24
37	7·3990663	7·4467518	7·4897157	7·5288091	7·5646727	7·5977992	7·628[illegible]771	7·6573174	23
38	7·3999055	7·4475038	7·4903969	7·5294319	7·5652460	7·5983304	7·6290720	7·6577807	22
39	7·4007431	7·4482546	7·4910771	7·5300537	7·5658186	7·5988611	7·6295664	7·6582435	21
40	7·4015791	7·4490040	7·4917562	7·5306746	7·5663904	7·5993910	7·6300602	7·6587057	20
41	7·4024135	7·4497521	7·4924343	7·5312946	7·56[illegible]961	7·5999203	7·6305534	7·6591675	19
42	7·4032463	7·4504990	7·4931113	7·5319137	7·5675318	7·6004490	7·6310461	7·6596288	18
43	7·4040775	7·4512446	7·4937872	7·5325319	7·5681014	7·6009770	7·6315382	7·6600896	17
44	7·4049071	7·4519889	7·4944621	7·5331492	7·5686702	7·6015044	7·6320298	7·6605499	16
45	7·4057351	7·4527319	7·4951360	7·5337657	7·5692383	7·6020311	7·6325206	7·6610097	15
46	7·4065616	7·4534737	7·4958088	7·5343813	7·5698056	7·6025572	7·6330119	7·6614690	14
47	7·4073864	7·4542141	7·4964806	7·5349960	7·5703772	7·6030827	7·6335012	7·6619279	13
48	7·4082097	7·4549534	7·4971513	7·5356098	7·5709381	7·6036075	7·6339905	7·6623863	12
49	7·4090315	7·4556913	7·4978210	7·5362228	7·5715032	7·6041317	7·6344793	7·6628441	11
50	7·4098517	7·4564281	7·4984897	7·5368349	7·5720676	7·6046553	7·6349676	7·6633015	10
51	7·4106704	7·4571635	7·4991573	7·5374462	7·5726313	7·6051782	7·6354553	7·6637585	9
52	7·4114875	7·4578978	7·4998237	7·5380566	7·5731942	7·6057005	7·6359424	7·6642149	8
53	7·4123030	7·4586308	7·5004895	7·5386661	7·5737564	7·6062222	7·6364290	7·6646709	7
54	7·4131171	7·4593625	7·5011541	7·5392748	7·5743179	7·6067433	7·6369151	7·6651263	6
55	7·4139296	7·4600930	7·5018176	7·5398826	7·5748786	7·6072637	7·6374006	7·6655813	5
56	7·4147406	7·4608223	7·5024802	7·5404896	7·5754386	7·6077835	7·6378856	7·6660358	4
57	7·4155501	7·4615504	7·5031417	7·5410958	7·5759979	7·6083027	7·6383700	7·6664899	3
58	7·4163581	7·4622773	7·5038022	7·5417011	7·5765565	7·6088213	7·6388539	7·6669415	2
59	7·4171646	7·4630030	7·5044618	7·5423055	7·5771144	7·6093392	7·6393373	7·6673966	1
60	7·4179696	7·4637279	7·5051204	7·5429091	7·5776715	7·6098566	7·6398201	7·6678492	0
″	51′	50′	49′	48′	47′	46′	45′	44′	″

″	8′	9	10′	11′	12′	13′	14′	15′	″
0	7·3668157	7·4179681	7·4637255	7·5051181	7·5429065	7·5776684	7·6098530	7·6398160	60
1	7·3677195	7·4187716	7·4644487	7·5057756	7·5435092	7·5782249	7·6103697	7·6402983	59
2	7·3686215	7·4195737	7·4651707	7·5064321	7·5441112	7·5787806	7·6108858	7·6407800	58
3	7·3695216	7·420374	7·4658916	7·5070876	7·5447123	7·5793356	7·6114012	7·6412612	57
4	7·3704198	7·421173	7·4666112	7·5077422	7·5453125	7·5798899	7·6119161	7·6417419	56
5	7·3713162	7·4219769	7·4673290	7·5083958	7·5459120	7·5804435	7·6124304	7·6422221	55
6	7·3722107	7·4227670	7·4680469	7·5090483	7·5465106	7·5809964	7·6129440	7·6427017	54
7	7·3731034	7·4235617	7·4687629	7·5096999	7·5471084	7·5815485	7·6134571	7·6431808	53
8	7·3739943	7·4243549	7·4694778	7·5103506	7·5477053	7·5821000	7·6139695	7·6436593	52
9	7·3748832	7·4251467	7·4701915	7·5110002	7·5483015	7·5826508	7·6144813	7·6441373	51
10	7·3757705	7·4259370	7·4709041	7·5116489	7·5488968	7·5832009	7·6149926	7·6446149	50
11	7·3766559	7·4267259	7·4716154	7·5122966	7·5494913	7·5837503	7·6155032	7·6450918	49
12	7·3775396	7·4275134	7·4723257	7·5129434	7·5500850	7·5842990	7·6160132	7·6455683	48
13	7·3784214	7·4282995	7·4730347	7·5135892	7·5506779	7·5848470	7·6165227	7·6460442	47
14	7·3793014	7·4290841	7·4737426	7·5142340	7·5512700	7·5853943	7·6170315	7·6465196	46
15	7·3801795	7·4298673	7·4744494	7·5148779	7·5518613	7·5859409	7·6175397	7·6469945	45
16	7·3810561	7·4306491	7·4751549	7·5155208	7·5524518	7·5864869	7·6180474	7·6474689	44
17	7·3819308	7·4314295	7·4758594	7·5161628	7·5530414	7·5870321	7·6185544	7·6479428	43
18	7·3828038	7·4322085	7·4765627	7·5168038	7·5536303	7·5875767	7·6190609	7·6484161	42
19	7·3836750	7·4329861	7·4772649	7·5174439	7·5542184	7·5881206	7·6195668	7·6488889	41
20	7·3845444	7·4337624	7·4779659	7·5180830	7·5548057	7·5886638	7·6200721	7·6493613	40
21	7·3854122	7·4345372	7·4786658	7·5187212	7·5553921	7·5892064	7·6205768	7·6498331	39
22	7·3862782	7·4353106	7·4793646	7·5193585	7·5559778	7·5897481	7·6210809	7·6503043	38
23	7·3871424	7·4360827	7·4800623	7·5199948	7·5565627	7·5902893	7·6215844	7·6507751	37
24	7·3880050	7·4368534	7·4807588	7·5206302	7·5571469	7·5908298	7·6220873	7·6512454	36
25	7·3888658	7·4376228	7·4814542	7·5212646	7·5577302	7·5913696	7·6225897	7·6517151	35
26	7·3897249	7·4383908	7·4821485	7·5218982	7·5583127	7·5919088	7·6230915	7·6521844	34
27	7·3905824	7·4391574	7·4828417	7·5225308	7·5588945	7·5924473	7·6235927	7·6526531	33
28	7·3914381	7·4399227	7·4835338	7·5231625	7·5594755	7·5929851	7·6240933	7·6531214	32
29	7·3922922	7·4406866	7·4842248	7·5237933	7·5600557	7·5935223	7·6245934	7·6535891	31
30	7·3931446	7·4414492	7·4849147	7·5244231	7·5606352	7·5940588	7·6250928	7·6540563	30
31	7·3939953	7·4422104	7·4856035	7·5250521	7·5612138	7·5945946	7·6255917	7·6545231	29
32	7·3948444	7·4429703	7·4862913	7·5256801	7·5617917	7·5951298	7·6260901	7·6549893	28
33	7·3956918	7·4437289	7·4869779	7·5263073	7·5623689	7·5956643	7·6265878	7·6554550	27
34	7·3965375	7·4444862	7·4876634	7·5269335	7·5629452	7·5961981	7·6270850	7·6559203	26
35	7·3973816	7·4452421	7·4883479	7·5275588	7·5635208	7·5967313	7·6275816	7·6563850	25
36	7·3982241	7·4459968	7·4890314	7·5281833	7·5640957	7·5972649	7·6280777	7·6568492	24
37	7·3990650	7·4467501	7·4897136	7·5288068	7·5646698	7·5977958	7·6285732	7·6573130	23
38	7·3999042	7·4475021	7·4903949	7·5294295	7·5652431	7·5983270	7·6290681	7·6577762	22
39	7·4007418	7·4482529	7·4910750	7·5300513	7·5658157	7·5988576	7·6295624	7·6582390	21
40	7·4015778	7·4490023	7·4917541	7·5306721	7·5663875	7·5993876	7·6300562	7·6587012	20
41	7·4024122	7·4497504	7·4924322	7·5312920	7·5669585	7·5999169	7·6305495	7·6591630	19
42	7·4032449	7·4504973	7·4931092	7·5319111	7·5675289	7·6004455	7·6310421	7·6596243	18
43	7·4040761	7·4512428	7·4937851	7·5325293	7·5680984	7·6009735	7·6315342	7·6600850	17
44	7·4049057	7·4519871	7·4944600	7·5331467	7·5686673	7·6015009	7·6320258	7·6605453	16
45	7·4057337	7·4527301	7·4951339	7·5337631	7·5692353	7·6020277	7·6325168	7·6610052	15
46	7·4065601	7·4534718	7·4958067	7·5343787	7·5698026	7·6025538	7·6330073	7·6614645	14
47	7·4073850	7·4542121	7·4964784	7·5349934	7·5703692	7·6030792	7·6334971	7·6619233	13
48	7·4082083	7·4549513	7·4971492	7·5356073	7·5709351	7·6036040	7·6339865	7·6623817	12
49	7·4090301	7·4556893	7·4978188	7·5362202	7·5715002	7·6041282	7·6344753	7·6628395	11
50	7·4098503	7·4564259	7·4984875	7·5368323	7·5720646	7·6046518	7·6349635	7·6632969	10
51	7·4106689	7·4571618	7·4991551	7·5374436	7·5726282	7·6051747	7·6354512	7·6637538	9
52	7·4114860	7·4578960	7·4998217	7·5380540	7·5731912	7·6056970	7·6359384	7·6642103	8
53	7·4123016	7·4586290	7·5004874	7·5386635	7·5737533	7·6062187	7·6364250	7·6646662	7
54	7·4131156	7·4593607	7·5011519	7·5392722	7·5743148	7·6067397	7·6369110	7·6651217	6
55	7·4139282	7·4600912	7·5018154	7·5398800	7·5748755	7·6072602	7·6373965	7·6655767	5
56	7·4147392	7·4608205	7·5024780	7·5404870	7·5754356	7·6077800	7·6378815	7·6660312	4
57	7·4155487	7·4615486	7·5031395	7·5410931	7·5759949	7·6082991	7·6383659	7·6664852	3
58	7·4163567	7·4622754	7·5038000	7·5416984	7·5765534	7·6088177	7·6388498	7·6669388	2
59	7·4171631	7·4630011	7·5044595	7·5423029	7·5771113	7·6093356	7·6393332	7·6673919	1
60	7·4179681	7·4637255	7·5051181	7·5429065	7·5776684	7·6098530	7·6398160	7·6678445	0
″	51′	50	49′	48′	47′	46′	45′	44′	″

"	8'	9'	10'	11'	12'	13'	14'	15'	"
0	7·3668169	7·4179696	7·4637273	7·5051203	7·5429091	7·5776715	7·6098566	7·6398201	60
1	7·3677207	7·4187731	7·4644506	7·5057778	7·5435119	7·5782280	7·6103733	7·6403024	59
2	7·3686227	7·4195752	7·4651726	7·5064343	[illegible]	7·5787837	7·6108894	7·6407842	58
3	7·3695229	7·4203757	7·4658934	7·5070899	7·5447149	7·5793387	7·6114049	7·6412654	57
4	7·3704210	7·4211748	[illegible]	7·5077444	7·5453152	7·5798930	7·6119197	7·6417461	56
5	7·3713174	7·4219724	7·4673313	7·5083940	7·5459147	7·5804466	7·6124340	7·6422262	55
6	7·3722119	7·4227685	7·4680487	7·5090506	7·5465133	7·5809995	7·6129477	7·6427059	54
7	7·3731046	7·4235632	7·4687648	7·5097022	7·5471111	7·5815517	7·6134607	7·6431850	53
8	7·3739955	7·4243564	7·4694797	7·5103528	7·5477080	7·5821032	7·6139732	7·6436635	52
9	7·3748845	7·4251482	7·4701944	7·5110025	7·5483042	7·5826540	7·6144850	7·6441416	51
10	7·3757718	7·4259386	7·4709080	7·5116512	7·5488995	7·5832041	[illegible]	7·6446191	50
11	7·3766572	7·4267275	7·4716173	7·5122989	7·5494941	7·5837535	7·6155064	7·6450961	49
12	7·3775408	7·4275150	7·4723276	7·5129457	7·5500878	7·5843022	7·6160169	7·6455725	48
13	7·3784226	7·4283010	7·4730360	7·5135915	7·5506807	7·5848502	7·6165264	7·6460485	47
14	7·3793026	7·4290857	7·4737445	7·5142363	7·5512728	7·5853975	7·6170352	7·6465239	46
15	7·3801809	7·4298689	7·4744513	7·5148802	7·5518640	7·5859441	7·6175435	7·6469988	45
16	7·3810574	7·4306507	7·4751569	7·5155231	7·5524545	7·5864901	7·6180511	7·6474732	44
17	7·3819321	7·4314311	7·4758615	7·5161651	7·5530442	7·5870353	7·6185582	7·6479471	43
18	7·3828051	7·4322101	7·4765646	7·5168061	7·5536331	7·5875799	7·6190647	7·6484204	42
19	7·3836763	7·4329877	7·4772668	7·5174462	7·5542212	7·5881238	7·6195705	7·6488931	41
20	7·3845457	7·4337640	7·4779679	7·5180854	7·5548084	7·5886670	7·6200758	7·6493656	40
21	7·3854134	7·4345388	7·4786678	7·5187236	7·5553949	7·5892096	7·6205805	7·6498374	39
22	7·3862794	7·4353123	7·4793666	7·5193609	7·5559806	7·5897514	7·6210847	7·6503087	38
23	7·3871437	7·4360843	7·4800642	7·5199972	7·5565656	7·5902926	7·6215882	7·6507795	37
24	7·3880063	7·4368551	7·4807608	7·5206326	7·5571497	7·5908331	7·6220911	7·6512497	36
25	7·3888671	7·4376244	7·4814562	7·5212670	7·5577330	7·5913730	7·6225933	7·6517195	35
26	7·3897263	7·4383924	7·4821505	7·5219006	7·5583156	7·5919121	7·6230951	7·6521888	34
27	7·3905837	7·4391590	7·4828437	7·5225332	7·5588974	7·5924506	7·6235965	7·6526575	33
28	7·3914395	7·4399243	7·4835359	7·5231649	7·5594784	7·5929884	7·6240972	7·6531258	32
29	7·3922935	7·4406882	7·4842269	7·5237957	7·5600586	7·5935256	7·6245972	7·6535935	31
30	7·3931459	7·4414508	7·4849168	7·5244256	7·5606380	7·5940621	7·6250967	7·6540608	30
31	7·3939967	7·4422121	7·4856056	7·5250545	7·5612167	7·5945980	7·6255956	7·6545275	29
32	7·3948457	7·4429720	7·4862933	7·5256826	7·5617946	7·5951331	7·6260939	7·6549937	28
33	7·3956931	7·4437306	7·4869799	7·5263097	7·5623718	7·5956677	7·6265917	7·6554595	27
34	7·3965389	7·4444879	7·4876655	7·5269360	7·5629481	7·5962016	7·6270889	7·6559247	26
35	7·3973830	7·4452438	7·4883500	7·5275613	7·5635238	7·5967347	7·6275855	7·6563893	25
36	7·3982255	7·4459985	7·4890334	7·5281858	7·5640986	7·5972673	7·6280816	7·6568537	24
37	7·3990663	7·4467518	7·4897157	7·5288093	7·5646727	7·5977992	7·6285771	7·6573174	23
38	7·3999055	7·4475038	7·4903969	7·5294319	7·5652460	7·5983304	7·6290720	7·6577807	22
39	7·4007431	7·4482546	7·4910771	7·5300537	7·5658180	7·5988611	7·6295664	7·6582435	21
40	7·4015791	7·4490040	7·4917562	7·5306746	7·5663904	7·5993910	7·6300602	7·6587057	20
41	7·4024135	7·4497521	7·4924343	7·5312946	7·5669615	7·5999204	7·6305534	7·6591675	19
42	7·4032463	7·4504990	7·4931114	7·5319137	7·5675318	7·6004490	7·6310461	7·6596288	18
43	7·4040775	7·4512446	7·4937872	7·5325319	7·5681014	7·6009770	7·6315382	7·6600896	17
44	7·4049071	7·4519889	7·4944621	7·5331492	7·5686702	7·6015044	7·6320298	7·6605499	16
45	7·4057351	7·4527319	7·4951360	7·5337657	7·5692383	7·6020311	7·6325208	7·6610097	15
46	7·4065616	7·4534737	7·4958088	7·5343813	7·5698056	7·6025572	7·6330113	7·6614690	14
47	7·4073864	7·4542141	7·4964806	7·5349960	7·5703722	7·6030827	7·6335012	7·6619279	13
48	7·4082097	7·4549534	7·4971514	7·5356098	7·5709381	7·6036075	7·6339905	7·6623863	12
49	7·4090315	7·4556913	7·4978210	7·5362228	7·5715032	7·6041317	7·6344793	7·6628441	11
50	7·4098517	7·4564281	7·4984897	7·5368349	7·5720676	7·6046553	7·6349676	7·6633015	10
51	7·4106703	7·4571635	7·4991573	7·5374462	7·5726313	7·6051782	7·6354553	7·6637585	9
52	7·4114875	7·4578978	7·4998239	7·5380566	7·5731942	7·6057005	7·6359424	7·6642149	8
53	7·4123030	7·4586308	7·5004895	7·5386661	7·5737564	7·6062222	7·6364290	7·6646709	7
54	7·4131171	7·4593625	7·5011541	7·5392748	7·5743179	7·6067433	7·6369151	7·6651263	6
55	7·4139296	7·4600930	7·5018176	7·5398826	7·5748786	7·6072637	7·6374006	7·6655813	5
56	7·4147406	7·4608221	7·5024802	7·5404896	7·5754386	7·6077835	7·6378856	7·6660359	4
57	7·4155501	7·4615504	7·5031417	7·5410958	7·5759979	7·6083027	7·6383700	7·6664899	3
58	7·4163581	7·4622773	7·5038022	7·5417011	7·5765565	7·6088213	7·6388539	7·6669435	2
59	7·4171646	7·4630040	7·5044618	7·5423055	7·5771144	7·6093392	7·6393372	7·6673966	1
60	7·4179696	7·4637273	7·5051203	7·5429091	7·5776715	7·6098566	7·6398201	7·6678492	0
"	51'	50'	49'	48'	47'	46'	45'	44'	"

″	8′	9	10′	11′	12′	13′	14′	15′	″
0	7·3668157	7·4179681	7·4637255	7·5051181	7·5429065	7·5776684	7·6098530	7·6398160	60
1	7·3677195	7·4187716	7·4644487	7·5057756	7·5435092	7·5782249	7·6103697	7·6402983	59
2	7·3686215	7·4195737	7·4651707	7·5064321	7·5441112	7·5787806	7·6108858	7·6407800	58
3	7·3695216	7·420374	7·4658916	7·5070876	7·5447123	7·5793356	7·6114012	7·6412612	57
4	7·3704198	7·421173	7·4666112	7·5077422	7·5453125	7·5798899	7·6119161	7·6417419	56
5	7·3713162	7·4219709	7·4673296	7·5083958	7·5459120	7·5804435	7·6124304	7·6422221	55
6	7·3722107	7·4227670	7·4680469	7·5090483	7·5465106	7·5809964	7·6129440	7·6427017	54
7	7·3731034	7·4235617	7·4687629	7·5096999	7·5471084	7·5815485	7·6134571	7·6431808	53
8	7·3739943	7·4243549	7·4694778	7·5103506	7·5477053	7·5821000	7·6139695	7·6436591	52
9	7·3748832	7·4251467	7·4701915	7·5110002	7·5483015	7·5826508	7·6144814	7·6441373	51
10	7·3757705	7·4259370	7·4709041	7·5116489	7·5488968	7·5832009	7·6149926	7·6446149	50
11	7·3766559	7·4267259	7·4716154	7·5122966	7·5494913	7·5837503	7·6155032	7·6450918	49
12	7·3775396	7·4275134	7·4723257	7·5129434	7·5500850	7·5842990	7·6160132	7·6455683	48
13	7·3784214	7·4282995	7·4730347	7·5135892	7·5506779	7·[illegible]	7·6165227	7·6460442	47
14	7·3793014	7·4290841	7·4737426	7·5142340	7·5512700	7·5853943	7·6170315	7·6465186	46
15	7·3801795	7·4298673	7·4744493	7·5148779	7·5518613	7·5859409	7·6175397	7·6469945	45
16	7·3810561	7·4306492	7·4751549	7·5155208	7·5524518	7·5864869	7·6180474	7·6474689	44
17	7·3819308	7·4314295	7·4758594	7·5161628	7·5530414	7·5870321	7·6185544	7·6479428	43
18	7·3828038	7·4322085	7·4765627	7·5168038	7·5536303	7·5875767	7·6190609	7·64841[illegible]	42
19	7·3836750	7·4329861	7·4772649	7·5174439	7·5542184	7·5881206	7·6195668	7·6488889	41
20	7·3845444	7·4337624	7·4779659	7·5180830	7·5548057	7·5886638	7·6200721	7·6493613	40
21	7·3854122	7·4345372	7·4786658	7·5187212	7·5553921	7·5892063	7·6205768	7·6498[illegible]	39
22	7·3862782	7·4353106	7·4793646	7·519[illegible]	7·5559778	7·5897481	7·6210809	7·6503043	38
23	7·3871424	7·4360827	7·4800623	7·5199948	7·5565627	7·5902893	7·6215844	7·6507751	37
24	7·3880050	7·4368534	7·4807588	7·5206302	7·5571469	7·5908298	7·6220873	7·6512454	36
25	7·3888658	7·4376228	7·4814542	7·5212646	7·5577302	7·5913696	7·6225897	7·6517151	35
26	7·3897249	7·4383908	7·4821485	7·5218982	7·5583127	7·5919088	7·6230915	7·6521844	34
27	7·3905824	7·4391574	7·4828417	7·5225308	7·5588945	7·5924473	7·6235927	7·6526531	33
28	7·3914381	7·4399227	7·4835338	7·5231625	7·5594755	7·5929851	7·6240933	7·6531214	32
29	7·3922922	7·4406866	7·4842248	7·5237933	7·5600557	7·5935223	7·6245934	7·6535891	31
30	7·3931446	7·4414492	7·4849147	7·5244231	7·5606352	7·5940588	7·6250928	7·6540563	30
31	7·3939953	7·4422104	7·4856035	7·5250521	7·5612138	7·5945946	7·6255917	7·6545231	29
32	7·3948444	7·4429703	7·4862911	7·5256801	7·5617917	7·5951298	7·6260901	7·6549893	28
33	7·3956918	7·4437289	7·4869779	7·5263071	7·5623689	7·5956643	7·6265878	7·6554[illegible]	27
34	7·3965371	7·4444862	7·4876634	7·5269335	7·5629452	7·5961981	7·6270850	7·6559[illegible]	26
35	7·3973816	7·4452421	7·4883479	7·5275588	7·5635208	7·5967313	7·6275816	7·6563850	25
36	7·3982241	7·4459968	7·4890313	7·5281833	7·5640957	7·5972649	7·6280777	7·6568492	24
37	7·3990650	7·4467501	7·4897136	7·5288068	7·5646698	7·5977958	7·6285732	7·6573130	23
38	7·3999042	7·4475021	7·4903949	7·5294295	7·5652431	7·5983270	7·6290681	7·6577[illegible]	22
39	7·4007418	7·4482529	7·4910750	7·5300512	7·5658157	7·5988576	7·6295624	7·6582[illegible]	21
40	7·4015778	7·4490023	7·4917541	7·5306721	7·5663875	7·5993876	7·6300562	7·65[illegible]	20
41	7·4024121	7·4497504	7·4924322	7·5312920	7·5669585	7·5999169	7·6305494	7·6591[illegible]	19
42	7·4032449	7·4504973	7·4931092	7·5319111	7·5675289	7·6004455	7·6310421	7·6596[illegible]	18
43	7·4040761	7·4512424	7·4937851	7·5325294	7·5680984	7·6009735	7·6315342	7·6600[illegible]	17
44	7·4049057	7·4519871	7·4944600	7·5331467	7·5686672	7·6015009	7·6320258	7·6605453	16
45	7·4057337	7·4527306	7·4951339	7·5337631	7·5692353	7·6020277	7·6325169	7·6610052	15
46	7·4065601	7·4534719	7·4958067	7·5343787	7·5698026	7·6025538	7·6330075	7·6614646	14
47	7·4073850	7·4542121	7·4964784	7·5349934	7·5703692	7·6030792	7·6334971	7·6619[illegible]	13
48	7·4082083	7·4549510	7·4971492	7·5356073	7·5709351	7·6036040	7·6339865	7·662[illegible]	12
49	7·4090301	7·455689	7·4978188	7·5362202	7·5715002	7·6041282	7·6344753	7·6628[illegible]	11
50	7·4098503	7·4564263	7·4984875	7·5368321	7·5720646	7·6046518	7·6349643	7·6632[illegible]	10
51	7·4106689	7·4571618	7·4991551	7·5374436	7·5726282	7·6051747	7·6354552	7·66[illegible]	9
52	7·4114860	7·4578960	7·4998217	7·5380540	7·5731912	7·6056970	7·6359384	7·6642[illegible]	8
53	7·4123016	7·4586290	7·5004873	7·5386635	7·5737533	7·6062187	7·6364250	7·6646[illegible]	7
54	7·4131156	7·4593607	7·5011519	7·5392722	7·5743148	7·6067397	7·6369110	7·6651[illegible]	6
55	7·4139282	7·4600912	7·5018154	7·5398800	7·5748755	7·6072602	7·637396[illegible]	7·665[illegible]	5
56	7·4147392	7·460820[illegible]	7·5024780	7·5404870	7·5754356	7·6077800	7·637881[illegible]	7·6660[illegible]	4
57	7·4155487	7·4615480	7·5031395	7·5410931	7·5759949	7·6082991	7·6383659	7·666[illegible]	3
58	7·4163567	7·4622754	7·5038000	7·5416984	7·5765534	7·6088177	7·638[illegible]	7·66[illegible]	2
59	7·4171633	7·4630011	7·5044595	7·5423029	7·5771113	7·6093356	7·639[illegible]	7·66[illegible]	1
60	7·4179681	7·4637255	7·5051181	7·5429065	7·5776684	7·6098530	7·6398160	7·667[illegible]	[illegible]
″	51	50′	49′	48′	47′	46′	45′	44′	″

"	8'	9'	10'	11'	12'	13'	14'	15'	"
0	7·3668169	7·4179666	7·4637473	7·5051203	7·5429001	7·5776715	7·6098566	7·6398201	60
1	7·3677207	7·4187741	7·4644506	7·5057778	7·5435119	7·5782280	7·6103733	7·6403024	59
2	7·3686227	7·4195757	7·4651726	[illegible]	[illegible]	[illegible]	7·6108894	7·6407842	58
3	7·3695228	7·4203757	7·4658934	7·5070899	7·5447140	7·5793347	7·6114049	7·6412654	57
4	7·3704210	7·4211748	7·4666130	7·5077444	7·5453152	7·5798930	7·6119197	7·6417461	56
5	7·3713174	7·4219724	7·4673313	7·5083980	7·5459147	7·5804466	7·6124340	7·6422262	55
6	7·3722119	7·4227685	7·4680487	7·5090506	7·5465133	7·5809995	7·6129477	7·6427059	54
7	7·3731046	7·4235632	7·4687648	7·5097022	7·5471111	7·5815517	7·6134607	7·6431850	53
8	7·3739955	7·4243564	7·4694797	7·5103528	7·5477080	7·5821032	7·6139732	7·6436635	52
9	7·3748845	7·4251482	7·4701934	7·5110025	7·5483042	7·5826540	7·6144850	7·6441416	51
10	7·3757718	7·4259386	7·4709060	7·5116512	7·5488995	7·5832041	7·6149963	7·6446191	50
11	7·3766572	7·4267275	7·4716173	7·5122989	7·5494941	7·5837535	7·6155069	7·6450961	49
12	7·3775408	7·4275150	7·4723276	7·5129457	7·5500878	7·5843022	7·6160169	7·6455725	48
13	7·3784226	7·4283010	7·4730466	7·5135915	7·5506807	7·5848502	7·6165264	7·6460485	47
14	7·3793026	7·4290857	7·4737445	7·5142364	7·5512728	7·5853975	7·6170352	7·6465239	46
15	7·3801809	7·4298689	7·4744513	7·5148802	7·5518640	7·5859441	7·6175435	7·6469988	45
16	7·3810574	7·4306507	7·4751569	7·5155231	7·5524545	7·5864901	7·6180511	7·6474732	44
17	7·3819321	7·4314311	7·4758613	7·5161651	7·5530442	7·5870354	7·6185582	7·6479471	43
18	7·3828051	7·4322101	7·4765646	7·5168061	7·5536331	7·5875799	7·6190647	7·6484204	42
19	7·3836763	7·4329877	7·4772668	7·5174462	7·5542212	7·5881238	7·6195705	7·6488933	41
20	7·3845457	7·4337640	7·4779679	7·5180854	7·5548084	7·5886670	7·6200758	7·6493656	40
21	7·3854134	7·4345388	7·4786678	7·5187236	7·5553949	7·5892096	7·6205805	7·6498374	39
22	7·3862794	7·4353123	7·4793666	7·5193608	7·5559806	7·5897514	7·6210847	7·6503087	38
23	7·3871437	7·4360843	7·4800642	7·5199972	7·5565656	7·5902926	7·6215882	7·6507795	37
24	7·3880063	7·4368551	7·4807608	7·5206326	7·5571497	7·5908331	7·6220911	7·6512497	36
25	7·3888671	7·4376244	7·4814562	7·5212670	7·5577330	7·5913730	7·6225935	7·6517195	35
26	7·3897263	7·4383924	7·4821505	7·5219006	7·5583156	7·5919121	7·6230953	7·6521888	34
27	7·3905837	7·4391590	7·4828437	7·5225332	7·5588974	7·5924506	7·6235965	7·6526575	33
28	7·3914395	7·4399243	7·4835359	7·5231649	7·5594784	7·5929884	7·6240971	7·6531258	32
29	7·3922935	7·4406882	7·4842269	7·5237957	7·5600586	7·5935256	7·6245972	7·6535935	31
30	7·3931459	7·4414508	7·4849168	7·5244256	7·5606380	7·5940621	7·6250967	7·6540608	[illegible]
31	7·3939967	7·4422121	7·4856056	7·5250546	7·5612167	7·5945980	7·6255956	7·6545275	29
32	7·3948457	7·4429720	7·4862933	7·5256826	7·5617946	7·5951331	7·6260939	7·6549937	28
33	7·3956931	7·4437306	7·4869799	7·5263097	7·5623718	7·5956677	7·6265917	7·6554595	27
34	7·3965389	7·4444879	7·4876655	7·5269360	7·5629481	7·5962016	7·6270889	7·6559247	26
35	7·3973830	7·4452438	7·4883500	7·5275613	7·5635238	7·5967347	7·6275855	7·6563895	25
36	7·3982255	7·4459985	7·4890334	7·5281858	7·5640986	7·5972672	7·6280816	7·6568537	24
37	7·3990663	7·4467518	7·4897157	7·5288093	7·5646727	7·5977992	7·6285771	7·6573174	23
38	7·3999055	7·4475038	7·4903969	7·5294319	7·5652460	7·5983304	7·6290720	7·6577807	22
39	7·4007431	7·4482546	7·4910771	7·5300537	7·5658186	7·5988611	7·6295664	7·6582435	21
40	7·4015791	7·4490040	7·4917562	7·5306746	7·5663904	7·5993910	7·6300602	7·6587057	20
41	7·4024135	7·4497521	7·4924343	7·5312946	7·5669614	7·5999203	7·6305534	7·6591675	19
42	7·4032463	7·4504990	7·4931113	7·5319137	7·5675318	7·6004490	7·6310461	7·6596288	18
43	7·4040775	7·4512446	7·4937872	7·5325319	7·5681014	7·6009770	7·6315382	7·6600896	17
44	7·4049071	7·4519889	7·4944621	7·5331493	7·5686702	7·6015044	7·6320298	7·6605499	16
45	7·4057351	7·4527319	7·4951360	7·5837657	7·5692383	7·6020311	7·6325208	7·6610097	15
46	7·4065616	7·4534737	7·4958088	7·5343813	7·5698056	7·6025572	7·6330111	7·6614690	14
47	7·4073864	7·4542141	7·4964806	7·5349960	7·5703727	7·6030827	7·6335012	7·6619279	13
48	7·4082097	7·4549534	7·4971513	7·5356098	7·5709381	7·6036075	7·6339905	7·6623863	12
49	7·4090315	7·4556913	7·4978210	7·5362228	7·5715012	7·6041317	7·6344793	7·6628441	11
50	7·4098517	7·4564281	7·4984897	7·5368349	7·5720676	7·6046553	7·6349676	7·6633015	10
51	7·4106703	7·4571635	7·4991574	7·5374467	7·5726313	7·6051782	7·6354553	7·6637585	9
52	7·4114875	7·4578978	7·4998239	7·5380564	7·5731942	7·6057005	7·6359424	7·6642149	8
53	7·4123030	7·4586308	7·5004895	7·5386661	7·5737564	7·6062222	7·6364290	7·6646709	7
54	7·4131171	7·4593625	7·5011541	7·5392748	7·5743179	7·6067433	7·6369151	7·6651263	6
55	7·4139296	7·4600930	7·5018176	7·5398826	7·5748786	7·6072637	7·6374006	7·6655813	5
56	7·4147406	7·4608224	7·5024802	7·5404896	7·5754386	7·6077835	7·6378856	7·6660359	4
57	7·4155501	7·4615504	7·5031417	7·5410958	7·5759979	7·6083027	7·6383700	7·6664899	3
58	7·4163581	7·4622773	7·5038022	7·5417011	7·5765565	7·6088213	7·6388539	7·6669435	2
59	7·4171646	7·4630030	7·5044618	7·5423055	7·5771144	7·6093392	7·6393373	7·6673966	1
60	7·4179696	7·4637273	7·5051203	7·5429001	7·5776715	7·6098566	7·6398201	7·6678492	0
"	51'	50'	49'	48'	47'	46'	45'	44'	"

″	16′	17′	18′	19′	20′	21′	22′	23′	″
0	7·6678445	7·6941733	7·7189966	7·7424775	7·7647537	7·7859427	7·8061458	7·8254507	60
1	7·6682967	7·6945988	7·7193986	7·7428583	7·7651154	7·7862872	7·8064747	7·8257653	59
2	7·6687484	7·6950240	7·7198001	7·7432388	7·7654769	7·7866315	7·8068033	7·8260797	58
3	7·6691996	7·6954487	7·7202015	7·7436189	7·7658380	7·7869755	7·8071317	7·8263938	57
4	7·6696503	7·6958730	7·7206021	7·7439987	7·7661989	7·7873192	7·8074599	7·8267077	56
5	7·6701006	7·6962969	7·7210026	7·7443781	7·7665594	7·7876627	7·8077878	7·8270214	55
6	7·6705504	7·6967204	7·7214027	7·7447573	7·7669197	7·7880058	7·8081154	7·8273348	54
7	7·6709998	7·6971435	7·7218024	7·7451460	7·7672797	7·7883488	7·8084428	7·8276481	53
8	7·6714486	7·6975662	7·7222017	7·7455145	7·7676393	7·7886914	7·8087699	7·8279611	52
9	7·6718970	7·6979884	7·7226007	7·7458926	7·7679987	7·7890337	7·8090968	7·828[illegible]	51
10	7·6723450	7·6984103	7·7229993	7·7462705	7·7683577	7·7893758	7·8094235	[illegible]	50
11	7·6727925	7·6988317	7·7233976	7·7466479	7·7687165	7·7897177	7·8097499	7·8289[illegible]	49
12	7·6732395	7·6992528	7·7237955	7·7470251	7·7690750	7·7900593	7·8100761	7·829[illegible]	48
13	7·6736861	7·6996734	7·7241930	7·7474019	7·7694332	7·7904005	7·8104020	7·8295[illegible]	47
14	7·6741322	7·7000936	7·7245902	7·7477784	7·7697910	7·7907415	7·8107277	7·8298345	46
15	7·6745779	7·7005134	7·7249869	7·7481546	7·7701486	7·7910823	7·8110531	7·8301458	45
16	7·6750231	7·7009328	7·7253834	7·7485304	7·7705059	7·7914228	7·8113783	7·8304570	44
17	7·6754678	7·7013518	7·7257794	7·7489059	7·7708629	7·7917630	7·8117034	7·8307680	43
18	7·6759121	7·7017704	7·7261752	7·7492811	7·7712196	7·7921029	7·8120279	7·8310787	42
19	7·6763559	7·7021886	7·7265705	7·7496560	7·7715760	7·7924426	7·8123524	7·8313893	41
20	7·6767993	7·7026064	7·7269655	7·7500306	7·7719322	7·7927820	7·8126766	7·8316996	40
21	7·6772422	7·7030238	7·7273601	7·7504048	7·7722880	7·7931212	7·8130006	7·8320097	39
22	7·6776847	7·7034407	7·7277544	7·7507787	7·7726435	7·7934601	7·8133243	7·8323195	38
23	7·6781267	7·7038573	7·7281484	7·7511523	7·7729988	7·7937987	7·8136478	7·8326292	37
24	7·6785683	7·7042735	7·7285419	7·7515255	7·7733537	7·7941371	7·8139711	7·8329386	36
25	7·6790094	7·7046893	7·7289351	7·7518985	7·7737084	7·7944752	7·8142941	7·8332478	35
26	7·6794501	7·7051047	7·7293279	7·7522711	7·7740628	7·7948130	7·8146168	7·8335568	34
27	7·6798904	7·7055197	7·7297204	7·7526434	7·7744169	7·7951506	7·8149394	7·8338656	33
28	7·6803302	7·7059343	7·7301125	7·7530154	7·7747707	7·7954879	7·8152617	7·8341741	32
29	7·6807695	7·7063485	7·7305043	7·7533871	7·7751242	7·7958250	7·8155837	7·8344825	31
30	7·6812084	7·7067623	7·7308957	7·7537584	7·7754774	7·7961617	7·8159055	7·8347906	30
31	7·6816469	7·7071757	7·7312868	7·7541294	7·7758303	7·7964983	7·8162271	7·8350985	29
32	7·6820849	7·7075887	7·7316776	7·7545001	7·7761830	7·7968345	7·8165484	7·8354062	28
33	7·6825221	7·7080014	7·7320679	7·7548705	7·7765354	7·7971705	7·8168695	[illegible]	27
34	7·6829596	7·7084136	7·7324579	7·7552406	7·7768871	7·7975063	7·8171904	7·8360209	26
35	7·6833963	7·7088254	7·7328476	7·7556104	7·7772392	7·7978418	7·8175110	7·8363278	25
36	7·6838325	7·7092369	7·7332369	7·7559798	7·7775907	7·7981770	7·8178314	7·8366347	24
37	7·6842643	7·7096180	7·7336259	7·7563490	7·7779420	7·7985120	7·8181516	7·8369411	23
38	7·6847037	7·7100586	7·734014[illegible]	7·7567178	7·7782929	7·7988467	7·8184715	7·837[illegible]	22
39	7·6851387	7·7104689	7·7344028	7·7570864	7·7786436	7·7991811	7·8187912	7·837[illegible]	21
40	7·6855732	7·7108788	7·7347906	7·7574545	7·7789939	7·7995153	7·8191106	7·837[illegible]	20
41	7·6860072	7·7112881	7·7351781	7·7578224	7·7793440	7·7998494	7·8194298	[illegible]	19
42	7·6864409	7·7116975	7·7355650	7·7581900	7·7796938	7·8001830	7·8197488	7·838[illegible]	18
43	7·6868741	7·7121062	7·735952[illegible]	7·7585572	7·7800433	7·8005164	7·8200676	7·8387763	17
44	7·6873069	7·7125146	7·7363390	7·7589242	7·7803926	7·8008496	7·8203861	7·8390814	16
45	7·6877392	7·7129225	7·7367[illegible]	7·7592908	7·7807416	7·8011825	7·8207043	[illegible]	15
46	7·6881711	7·7133301	7·7371111	7·7596572	7·7810903	7·8015151	7·8210224	7·839[illegible]	14
47	7·6886026	7·7137373	7·7374966	7·7600232	7·7814387	7·8018475	7·8213402	7·839[illegible]	13
48	7·6890337	7·7141442	7·7378818	7·7603889	7·7817868	7·8021797	7·8216578	[illegible]	12
49	7·6894643	7·7145506	7·7382666	7·7607543	7·7821347	7·8025116	7·8219751	7·8406016	11
50	7·6898945	7·7149567	7·7386511	7·7611194	7·7824822	7·8028432	7·8222922	7·840[illegible]	10
51	7·6903243	7·7153621	7·7390353	7·7614842	7·7828295	7·8031747	7·8226091	7·8412130	9
52	7·6907536	7·7157677	7·7394191	7·7618487	7·7831765	7·8035058	7·8229258	7·8415146	8
53	7·6911826	7·7161726	7·7398026	7·7622129	7·7835233	7·8038367	7·8232422	7·8418176	7
54	7·6916111	7·7165772	7·7401857	7·7625768	7·7838697	7·8041673	7·8235584	7·842[illegible]	6
55	7·6920392	7·7169814	7·7405685	7·7629403	7·7842159	7·8044977	7·8238744	7·842[illegible]	5
56	7·6924668	7·7173852	7·7409510	7·7633036	7·7845618	7·8048278	7·8241901	7·842[illegible]	4
57	7·6928941	7·7177886	7·7413331	7·7636666	7·7849075	7·8051577	7·8245056	7·843[illegible]	3
58	7·6933209	7·7181917	7·7417149	7·7640292	7·7852528	7·8054873	7·8248209	7·843[illegible]	2
59	7·6937473	7·7185943	7·7420963	7·7643916	7·7855979	7·8058167	7·8251359	7·84[illegible]	1
60	7·6941733	7·7189966	7·7424775	7·7647537	7·7859427	7·8061458	7·8254507	7·84[illegible]	0
″	43′	42′	41′	40′	39′	38′	37′	36′	″

″	16′	17′	18′	19′	20′	21′	22′	23′	″
0	7·6678492	7·6941786	7·7190026	7·7424841	7·7647610	7·7859509	7·8061547	7·8254604	60
1	7·6683014	7·6946042	7·7194045	7·7428649	7·7651228	7·7862954	7·8064836	7·8257750	59
2	7·6687531	7·6950293	7·7198061	7·7432454	7·7654843	7·7866396	7·8068123	7·8260894	58
3	7·6692043	7·6954541	7·7202073	7·7436255	7·7658454	7·7869836	7·8071407	7·8264036	57
4	7·6696551	7·6958784	7·7206081	7·7440053	7·7662063	7·7873274	7·8074688	7·8267175	56
5	7·6701053	7·6963023	7·7210086	7·7443848	7·7665669	7·7876708	7·8077967	7·8270312	55
6	7·6705552	7·6967258	7·7214087	7·7447640	7·7669271	7·7880140	7·8081244	7·8273446	54
7	7·6710045	7·6971489	7·7218084	7·7451428	7·7672871	7·7883569	7·8084518	7·8276579	53
8	7·6714534	7·6975716	7·7222078	7·7455212	7·7676468	7·7886996	7·8087789	7·8279709	52
9	7·6719018	7·6979938	7·7226069	7·7458994	7·7680061	7·7890420	7·8091059	7·8282837	51
10	7·6723498	7·6984157	7·7230054	7·7462772	7·7683652	7·7893841	7·8094325	7·8285962	50
11	7·6727973	7·6988371	7·7234037	7·7466547	7·7687240	7·7897259	7·8097590	7·8289086	49
12	7·6732443	7·6992582	7·7238016	7·7470319	7·7690825	7·7900675	7·8100851	7·8292207	48
13	7·6736909	7·6996788	7·7241991	7·7474087	7·7694407	7·7904088	7·8104111	7·8295326	47
14	7·6741371	7·7000990	7·7245963	7·7477852	7·7697986	7·7907498	7·8107368	7·8298443	46
15	7·6745827	7·7005189	7·7249931	7·7481614	7·7701562	7·7910906	7·8110622	7·8301557	45
16	7·6750279	7·7009383	7·7253895	7·7485372	7·7705135	7·7914311	7·8113874	7·8304669	44
17	7·6754727	7·7013573	7·7257856	7·7489128	7·7708705	7·7917713	7·8117124	7·8307779	43
18	7·6759170	7·7017759	7·7261813	7·7492880	7·7712272	7·7921113	7·8120371	7·8310887	42
19	7·6763608	7·7021941	7·7265767	7·7496629	7·7715836	7·7924510	7·8123615	7·8313992	41
20	7·6768042	7·7026119	7·7269717	7·7500374	7·7719398	7·7927904	7·8126858	7·8317096	40
21	7·6772471	7·7030293	7·7273663	7·7504117	7·7722956	7·7931296	7·8130098	7·8320197	39
22	7·6776896	7·7034463	7·7277606	7·7507856	7·7726512	7·7934685	7·8133335	7·8323296	38
23	7·6781317	7·7038629	7·7281545	7·7511592	7·7730064	7·7938071	7·8136570	7·8326392	37
24	7·6785733	7·7042791	7·7285481	7·7515325	7·7733614	7·7941455	7·8139803	7·8329487	36
25	7·6790144	7·7046949	7·7289413	7·7519054	7·7737161	7·7944836	7·8143033	7·8332579	35
26	7·6794551	7·7051103	7·7293342	7·7522780	7·7740705	7·7948215	7·8146261	7·8335669	34
27	7·6798953	7·7055253	7·7297267	7·7526504	7·7744246	7·7951590	7·8149486	7·8338757	33
28	7·6803351	7·7059399	7·7301188	7·7530224	7·7747784	7·7954964	7·8152709	7·8341843	32
29	7·6807745	7·7063541	7·7305106	7·7533940	7·7751319	7·7958334	7·8155930	7·8344926	31
30	7·6812134	7·7067679	7·7309020	7·7537654	7·7754851	7·7961702	7·8159148	7·8348007	30
31	7·6816519	7·7071813	7·7312931	7·7541364	7·7758381	7·7965068	7·8162364	7·8351087	29
32	7·6820899	7·7075944	7·7316839	7·7545072	7·7761907	7·7968431	7·8165578	7·8354163	28
33	7·6825275	7·7080070	7·7320742	7·7548776	7·7765431	7·7971791	7·8168789	7·8357238	27
34	7·6829646	7·7084193	7·7324643	7·7552477	7·7768952	7·7975148	7·8171998	7·8360311	26
35	7·6834013	7·7088311	7·7328540	7·7556174	7·7772470	7·7978503	7·8175204	7·8363381	25
36	7·6838376	7·7092426	7·7332433	7·7559869	7·7775985	7·7981856	7·8178408	7·8366449	24
37	7·6842734	7·7096537	7·7336323	7·7563560	7·7779498	7·7985206	7·8181610	7·8369515	23
38	7·6847088	7·7100644	7·7340209	7·7567249	7·7783007	7·7988553	7·8184809	7·8372579	22
39	7·6851438	7·7104746	7·7344092	7·7570934	7·7786514	7·7991898	7·8188006	7·8375641	21
40	7·6855783	7·7108846	7·7347972	7·7574616	7·7790018	7·7995240	7·8191201	7·8378701	20
41	7·6860124	7·7112941	7·7351848	7·7578295	7·7793519	7·7998579	7·8194393	7·8381758	19
42	7·6864460	7·7117032	7·7355720	7·7581971	7·7797017	7·8001916	7·8197583	7·8384813	18
43	7·6868792	7·7121120	7·7359589	7·7585644	7·7800513	7·8005251	7·8200770	7·8387867	17
44	7·6873120	7·7125203	7·7363455	7·7589313	7·7804005	7·8008582	7·8203956	7·8390918	16
45	7·6877444	7·7129283	7·7367317	7·7592980	7·7807495	7·8011912	7·8207139	7·8393966	15
46	7·6881763	7·7133359	7·7371176	7·7596643	7·7810982	7·8015238	7·8210319	7·8397013	14
47	7·6886078	7·7137432	7·7375031	7·7600304	7·7814466	7·8018563	7·8213497	7·8400058	13
48	7·6890389	7·7141500	7·7378883	7·7603961	7·7817948	7·8021884	7·8216673	7·8403100	12
49	7·6894695	7·7145565	7·7382731	7·7607615	7·7821420	7·8025203	7·8219847	7·8406140	11
50	7·6898997	7·7149625	7·7386577	7·7611266	7·7824902	7·8028520	7·8223018	7·8409179	10
51	7·6903295	7·7153682	7·7390418	7·7614915	7·7828375	7·8031834	7·8226187	7·8412215	9
52	7·6907589	7·7157736	7·7394257	7·7618560	7·7831845	7·8035146	7·8229354	7·8415249	8
53	7·6911878	7·7161785	7·7398091	7·7622202	7·7835313	7·8038455	7·8232518	7·8418280	7
54	7·6916163	7·7165831	7·7401923	7·7625840	7·7838778	7·8041761	7·8235680	7·8421310	6
55	7·6920444	7·7169873	7·7405751	7·7629476	7·7842240	7·8045065	7·8238840	7·8424338	5
56	7·6924721	7·7173911	7·7409576	7·7633109	7·7845699	7·8048366	7·8241997	7·8427363	4
57	7·6928993	7·7177945	7·7413397	7·7636739	7·7849155	7·8051665	7·8245153	7·8430387	3
58	7·6933262	7·7181976	7·7417215	7·7640366	7·7852609	7·8054962	7·8248305	7·8433408	2
59	7·6937526	7·7186003	7·7421030	7·7643989	7·7856060	7·8058256	7·8251456	7·8436427	1
60	7·6941786	7·7190026	7·7424841	7·7647610	7·7859509	7·8061547	7·8254604	7·8439444	0
″	43′	42′	41′	40′	39′	38′	37′	36′	″

″	24′	25′	26′	27′	28′	29′	30′	31′	″
0	7·8439338	7·8616623	7·8786953	7·8950854	7·9108793	7·9261190	7·9408419	7·9550819	60
1	7·8442353	7·8619517	7·8789736	7·8953534	7·9111378	7·9263685	7·9410831	7·9553153	59
2	7·8445366	7·8622416	7·8792517	7·8956212	7·9113960	7·9266179	7·9413241	7·9555486	58
3	7·8448377	7·8625300	7·8795297	7·8958889	7·9116542	7·9268671	7·9415651	7·9557818	57
4	7·8451385	7·8628189	7·8798075	7·8961564	7·9119121	7·9271162	7·9418059	7·9560149	56
5	7·8454392	7·8631075	7·8800850	7·8964237	7·9121699	7·9273651	7·9420465	7·9562478	55
6	7·8457396	7·8633960	7·8803625	7·8966909	7·9124276	7·9276139	7·9422871	7·9564806	54
7	7·8460398	7·8636843	7·8806397	7·8969579	7·9126851	7·9278626	7·9425275	7·9567133	53
8	7·8463399	7·8639723	7·8809167	7·8972248	7·9129425	7·9281111	7·9427677	7·9569458	52
9	7·8466397	7·8642602	7·8811936	7·8974914	7·9131997	7·9283595	7·9430078	7·9571782	51
10	7·8469393	7·8645479	7·8814703	7·8977580	7·9134567	7·9286077	7·9432478	7·9574105	50
11	7·8472387	7·8648354	7·8817469	7·8980243	7·9137136	7·9288558	7·9434877	7·9576427	49
12	7·8475379	7·8651228	7·8820232	7·8982905	7·9139704	7·9291037	7·9437275	7·9578747	48
13	7·8478369	7·8654099	7·8822994	7·8985565	7·9142269	7·9293516	7·9439671	7·9581067	47
14	7·8481357	7·8656968	7·8825754	7·8988224	7·9144834	7·9295992	7·9442066	7·9583385	46
15	7·8484343	7·8659836	7·8828512	7·8990881	7·9147397	7·9298467	7·9444459	7·9585703	45
16	7·8487326	7·8662702	7·8831269	7·8993536	7·9149958	7·9300941	7·9446851	7·9588017	44
17	7·8490308	7·8665565	7·8834023	7·8996190	7·9152518	7·9303414	7·9449242	7·9590331	43
18	7·8493288	7·8668427	7·8836776	7·8998842	7·9155076	7·9305885	7·9451631	7·9592643	42
19	7·8496265	7·8671287	7·8839528	7·9001493	7·9157633	7·9308354	7·9454019	7·9594956	41
20	7·8499241	7·8674145	7·8842277	7·9004141	7·9160189	7·9310823	7·9456406	7·9597267	40
21	7·8502215	7·8677001	7·8845025	7·9006789	7·9162743	7·9313289	7·9458792	7·9599576	39
22	7·8505186	7·8679856	7·8847771	7·9009434	7·9165295	7·9315755	7·9461176	7·9601885	38
23	7·8508156	7·8682708	7·8850515	7·9012078	7·9167846	7·9318219	7·9463559	7·9604192	37
24	7·8511123	7·8685559	7·8853258	7·9014721	7·9170395	7·9320682	7·9465940	7·9606497	36
25	7·8514088	7·8688408	7·8855999	7·9017362	7·9172943	7·9323143	7·9468321	7·9608802	35
26	7·8517052	7·8691254	7·8858738	7·9020001	7·9175489	7·9325603	7·9470700	7·9611105	34
27	7·8520013	7·8694099	7·8861475	7·9022639	7·9178034	7·9328061	7·9473077	7·9613407	33
28	7·8522973	7·8696942	7·8864211	7·9025275	7·9180578	7·9330518	7·9475454	7·9615708	32
29	7·8525930	7·8699784	7·8866945	7·9027909	7·9183120	7·9332974	7·9477829	7·9618008	31
30	7·8528885	7·8702623	7·8869677	7·9030542	7·9185660	7·9335428	7·9480203	7·9620306	30
31	7·8531839	7·8705461	7·8872407	7·9033173	7·9188199	7·9337881	7·9482575	7·9622603	29
32	7·8534790	7·8708296	7·8875136	7·9035803	7·9190736	7·9340332	7·9484946	7·9624899	28
33	7·8537739	7·8711130	7·8877863	7·9038431	7·9193272	7·9342781	7·9487316	7·9627194	27
34	7·8540687	7·8713962	7·8880589	7·9041057	7·9195807	7·9345231	7·9489685	7·9629487	26
35	7·8543632	7·8716792	7·8883312	7·9043682	7·9198340	7·9347679	7·9492052	7·9631780	25
36	7·8546575	7·8719621	7·8886034	7·9046305	7·9200871	7·9350125	7·9494418	7·9634071	24
37	7·8549517	7·8722447	7·8888754	7·9048927	7·9203401	7·9352569	7·9496783	7·9636361	23
38	7·8552456	7·8725272	7·8891473	7·9051547	7·9205930	7·9355012	7·9499146	7·9638649	22
39	7·8555393	7·8728095	7·8894190	7·9054166	7·9208457	7·9357454	7·9501508	7·9640937	21
40	7·8558329	7·8730916	7·8896905	7·9056783	7·9210983	7·9359895	7·9503869	7·9643223	20
41	7·8561262	7·8733735	7·8899618	7·9059398	7·9213507	7·9362334	7·9506229	7·9645508	19
42	7·8564193	7·8736552	7·8902330	7·9062012	7·9216030	7·9364772	7·9508587	7·9647792	18
43	7·8567123	7·8739367	7·8905040	7·9064624	7·9218551	7·9367208	7·9510944	7·9650075	17
44	7·8570050	7·8742181	7·8907749	7·9067235	7·9221071	7·9369643	7·9513300	7·9652356	16
45	7·8572976	7·8744993	7·8910455	7·9069844	7·9223589	7·9372077	7·9515654	7·9654637	15
46	7·8575899	7·8747803	7·8913160	7·9072451	7·9226106	7·9374509	7·9518008	7·9656916	14
47	7·8578821	7·8750611	7·8915864	7·9075057	7·9228621	7·9376940	7·9520360	7·9659194	13
48	7·8581740	7·8753417	7·8918565	7·9077662	7·9231135	7·9379369	7·9522710	7·9661470	12
49	7·8584658	7·8756222	7·8921265	7·9080265	7·9233648	7·9381798	7·9525060	7·9663746	11
50	7·8587574	7·8759025	7·8923963	7·9082866	7·9236159	7·9384224	7·9527408	7·9666020	10
51	7·8590487	7·8761826	7·8926660	7·9085466	7·9238668	7·9386650	7·9529755	7·9668293	9
52	7·8593399	7·8764625	7·8929355	7·9088064	7·9241177	7·9389074	7·9532100	7·9670565	8
53	7·8596309	7·8767422	7·8932048	7·9090660	7·9243683	7·9391497	7·9534444	7·9672836	7
54	7·8599217	7·8770218	7·8934740	7·9093256	7·9246188	7·9393918	7·9536787	7·9675106	6
55	7·8602123	7·8773011	7·8937430	7·9095849	7·9248692	7·9396338	7·9539129	7·9677374	5
56	7·8605027	7·8775803	7·8940118	7·9098441	7·9251195	7·9398757	7·9541470	7·9679641	4
57	7·8607929	7·8778594	7·8942804	7·9101031	7·9253696	7·9401175	7·9543809	7·9681907	3
58	7·8610829	7·8781382	7·8945489	7·9103620	7·9256195	7·9403591	7·9546147	7·9684172	2
59	7·8613727	7·8784168	7·8948173	7·9106208	7·9258693	7·9406005	7·9548484	7·9686436	1
60	7·8616623	7·8786953	7·8950854	7·9108793	7·9261190	7·9408419	7·9550819	7·9688698	0
″	35′	34′	33′	32′	31′	30′	29′	28′	″

"	24′	25′	26′	27′	28′	29′	30′	31′	"
0	7·8439444	7·8616738	7·8787077	7·8950988	7·9108938	7·9261344	7·9408584	7·9550996	60
1	7·8442459	7·8619632	7·8789861	7·8953668	7·9111522	7·9263840	7·9410999	7·9553330	59
2	7·8445472	7·8622525	7·8792642	7·8956347	7·9114105	7·9266333	7·9413407	7·9555661	58
3	7·8448483	7·8625415	7·8795422	7·8959023	7·9116686	7·9268826	7·9415817	7·9557995	57
4	7·8451492	7·8628304	7·8798199	7·8961699	7·9119266	7·9271317	7·9418225	7·9560326	56
5	7·8454498	7·8631191	7·8800975	7·8964372	7·9121844	7·9273807	7·9420632	7·9562655	55
6	7·8457503	7·8634076	7·8803750	7·8967044	7·9124421	7·9276295	7·9423037	7·9564984	54
7	7·8460505	7·8636958	7·8806522	7·8969714	7·9126996	7·9278782	7·9425441	7·9567310	53
8	7·8463506	7·8639839	7·8809293	7·8972381	7·9129570	7·9281267	7·9427844	7·9569636	52
9	7·8466504	7·8642719	7·8812062	7·8975050	7·9132142	7·9283751	7·9430246	7·9571961	51
10	7·8469500	7·8645596	7·8814829	7·8977715	7·9134713	7·9286233	7·9432646	7·9574284	50
11	7·8472494	7·8648471	7·8817594	7·8980379	7·9137282	7·9288714	7·9435045	7·9576606	49
12	7·8475487	7·8651344	7·8820358	7·8983041	7·9139850	7·9291194	7·9437442	7·9578926	48
13	7·8478477	7·8654216	7·8823120	7·8985701	7·9142416	7·9293672	7·9439839	7·9581246	47
14	7·8481465	7·8657084	7·8825880	7·8988360	7·9144980	7·9296149	7·9442233	7·9583564	46
15	7·8484451	7·8659951	7·8828639	7·8991017	7·9147543	7·9298625	7·9444627	7·9585881	45
16	7·8487435	7·8662819	7·8831395	7·8993673	7·9150105	7·9301099	7·9447019	7·9588197	44
17	7·8490416	7·8665683	7·8834150	7·8996327	7·9152665	7·9303571	7·9449410	7·9590511	43
18	7·8493396	7·8668545	7·8836903	7·8998979	7·9155224	7·9306043	7·9451800	7·9592825	42
19	7·8496374	7·8671405	7·8839655	7·9001630	7·9157781	7·9308512	7·9454188	7·9595137	41
20	7·8499350	7·8674263	7·8842404	7·9004279	7·9160336	7·9310981	7·9456575	7·9597447	40
21	7·8502323	7·8677120	7·8845152	7·9006926	7·9162890	7·9313448	7·9458961	7·9599757	39
22	7·8505295	7·8679974	7·8847899	7·9009572	7·9165443	7·9315913	7·9461345	7·9602065	38
23	7·8508265	7·8682827	7·8850643	7·9012216	7·9167994	7·9318378	7·9463728	7·9604373	37
24	7·8511232	7·8685677	7·8853386	7·9014859	7·9170543	7·9320840	7·9466110	7·9606678	36
25	7·8514198	7·8688526	7·8856127	7·9017500	7·9173091	7·9323302	7·9468491	7·9608983	35
26	7·8517161	7·8691373	7·8858866	7·9020139	7·9175638	7·9325762	7·9470870	7·9611287	34
27	7·8520123	7·8694218	7·8861604	7·9022777	7·9178183	7·9328220	7·9473248	7·9613589	33
28	7·8523083	7·8697062	7·8864339	7·9025413	7·9180727	7·9330678	7·9475624	7·9615890	32
29	7·8526040	7·8699903	7·8867074	7·9028048	7·9183269	7·9333133	7·9478000	7·9618190	31
30	7·8528996	7·8702743	7·8869806	7·9030681	7·9185809	7·9335588	7·9480374	7·9620488	30
31	7·8531949	7·8705580	7·8872537	7·9033312	7·9188348	7·9338041	7·9482746	7·9622786	29
32	7·8534900	7·8708416	7·8875266	7·9035942	7·9190886	7·9340493	7·9485118	7·9625082	28
33	7·8537850	7·8711250	7·8877993	7·9038570	7·9193422	7·9342943	7·9487488	7·9627377	27
34	7·8540797	7·8714082	7·8880718	7·9041197	7·9195957	7·9345392	7·9489856	7·9629670	26
35	7·8543743	7·8716913	7·8883442	7·9043822	7·9198490	7·9347839	7·9492224	7·9631963	25
36	7·8546686	7·8719741	7·8886164	7·9046445	7·9201022	7·9350286	7·9494590	7·9634254	24
37	7·8549628	7·8722568	7·8888885	7·9049067	7·9203552	7·9352730	7·9496955	7·9636544	23
38	7·8552567	7·8725393	7·8891604	7·9051687	7·9206081	7·9355174	7·9499319	7·9638833	22
39	7·8555505	7·8728215	7·8894320	7·9054306	7·9208608	7·9357616	7·9501681	7·9641121	21
40	7·8558440	7·8731037	7·8897036	7·9056923	7·9211134	7·9360057	7·9504042	7·9643408	20
41	7·8561374	7·8733856	7·8899749	7·9059538	7·9213658	7·9362496	7·9506402	7·9645693	19
42	7·8564305	7·8736673	7·8902461	7·9062153	7·9216181	7·9364934	7·9508760	7·9647977	18
43	7·8567235	7·8739489	7·8905171	7·9064765	7·9218702	7·9367370	7·9511118	7·9650260	17
44	7·8570163	7·8742303	7·8907880	7·9067376	7·9221222	7·9369805	7·9513474	7·9652541	16
45	7·8573088	7·8745115	7·8910587	7·9069985	7·9223741	7·9372239	7·9515828	7·9654822	15
46	7·8576012	7·8747925	7·8913292	7·9072593	7·9226258	7·9374672	7·9518182	7·9657101	14
47	7·8578934	7·8750733	7·8915995	7·9075199	7·9228774	7·9377103	7·9520534	7·9659379	13
48	7·8581853	7·8753540	7·8918697	7·9077804	7·9231288	7·9379533	7·9522885	7·9661656	12
49	7·8584771	7·8756344	7·8921397	7·9080407	7·9233800	7·9381961	7·9525234	7·9663932	11
50	7·8587687	7·8759147	7·8924096	7·9083008	7·9236312	7·9384388	7·9527582	7·9666206	10
51	7·8590601	7·8761949	7·8926792	7·9085608	7·9238821	7·9386814	7·9529929	7·9668480	9
52	7·8593513	7·8764748	7·8929487	7·9088207	7·9241330	7·9389238	7·9532275	7·9670752	8
53	7·8596423	7·8767545	7·8932181	7·9090803	7·9243836	7·9391661	7·9534620	7·9673023	7
54	7·8599331	7·8770341	7·8934873	7·9093399	7·9246342	7·9394083	7·9536963	7·9675293	6
55	7·8602237	7·8773135	7·8937563	7·9095992	7·9248846	7·9396503	7·9539305	7·9677561	5
56	7·8605141	7·8775927	7·8940251	7·9098584	7·9251348	7·9398922	7·9541646	7·9679829	4
57	7·8608043	7·8778717	7·8942938	7·9101175	7·9253850	7·9401339	7·9543985	7·9682095	3
58	7·8610943	7·8781506	7·8945623	7·9103764	7·9256349	7·9403756	7·9546323	7·9684360	2
59	7·8613841	7·8784293	7·8948306	7·9106352	7·9258847	7·9406170	7·9548660	7·9686624	1
60	7·8616738	7·8787077	7·8950988	7·9108938	7·9261344	7·9408584	7·9550996	7·9688886	0
"	35′	34′	33′	32′	31′	30′	29′	28′	"

″	32′	33′	34′	35′	36′	37′	38′	39′	″
0	7·9688698	7·9822334	7·9951980	8·0077867	8·0200207	8·0319195	8·0435009	8·0547814	60
1	7·9690960	7·9824527	7·9954108	8·0079934	8·0202217	8·0321150	8·0436913	8·0549670	59
2	7·9693220	7·9826718	7·9956235	8·0082001	8·0204226	8·0323105	8·0438816	8·0551524	58
3	7·9695479	7·9828908	7·9958361	8·0084066	8·0206234	8·0325059	8·0440719	8·055337[illegible]	57
4	7·9697736	7·9831098	7·9960487	8·0086131	8·0208242	8·0327012	8·0442621	8·0555231	56
5	7·9699993	7·9833287	7·9962611	8·0088194	8·0210248	8·0328965	8·0444522	8·0557084	55
6	7·9702248	7·9835474	7·9964734	8·0090257	8·0212253	8·0330916	8·0446422	8·0558935	54
7	7·9704503	7·9837660	7·9966856	8·0092318	8·0214258	8·0332866	8·0448321	8·0560786	53
8	7·9706756	7·9839845	7·9968977	8·0094379	8·0216261	8·0334816	8·0450220	8·0562636	52
9	7·9709008	7·9842029	7·9971097	8·0096439	8·0218264	8·0336765	8·0452117	8·0564485	51
10	7·9711258	7·9844212	7·9973216	8·0098497	8·0220266	8·0338713	8·0454014	8·0566[illegible]	50
11	7·9713508	7·9846394	7·9975334	8·0100555	8·0222267	8·0340660	8·0455910	8·0568181	49
12	7·9715756	7·9848574	7·9977451	8·0102612	8·0224267	8·0342606	8·0457805	8·0570028	48
13	7·9718004	7·9850754	7·9979566	8·0104668	8·0226266	8·0344551	8·0459700	8·0571874	47
14	7·9720250	7·9852934	7·9981681	8·0106722	8·0228264	8·0346495	8·0461594	8·0573719	46
15	7·9722495	7·9855110	7·9983795	8·0108776	8·0230261	8·0348439	8·0463486	8·0575563	45
16	7·9724738	7·9857286	7·9985908	8·0110829	8·0232257	8·0350382	8·0465378	8·0577407	44
17	7·9726981	7·9859461	7·9988020	8·0112881	8·0234252	8·0352323	8·0467269	8·0579249	43
18	7·9729222	7·9861636	7·9990130	8·0114932	8·0236247	8·0354264	8·0469159	8·0581092	42
19	7·9731463	7·9863809	7·9992240	8·0116982	8·0238240	8·0356204	8·0471048	8·0582933	41
20	7·9733702	7·9865981	7·9994349	8·0119031	8·0240233	8·0358143	8·0472937	8·0584774	40
21	7·9735940	7·9868151	7·99964[illegible]6	8·0121079	8·0242224	8·0360082	8·0474825	8·0586614	39
22	7·9738177	7·9870321	7·9998563	8·0123126	8·0244215	8·0362019	8·0476712	8·0588453	38
23	7·9740412	7·9872490	8·0000669	8·0125172	8·0246205	8·0363956	8·0478598	8·0590292	37
24	7·9742647	7·9874658	8·0002773	8·0127217	8·0248194	8·0365892	8·0480484	8·0592130	36
25	7·9744880	7·9876824	8·0004877	8·0129261	8·0250182	8·0367826	8·0482368	8·0593966	35
26	7·9747113	7·9878989	8·0006979	8·0131304	8·0252169	8·0369760	8·0484251	8·05958[illegible]	34
27	7·9749344	7·9881154	8·0009081	8·0133347	8·0254155	8·0371693	8·0486134	8·0597[illegible]	33
28	7·9751574	7·9883317	8·0011181	8·0135388	8·0256141	8·0373626	8·0488016	8·0599471	32
29	7·9753802	7·9885479	8·0013281	8·0137428	8·0258125	8·0375557	8·0489897	8·0601304	31
30	7·9756030	7·9887641	8·0015379	8·0139468	8·0260108	8·0377488	8·0491778	8·0603137	30
31	7·9758257	7·9889801	8·0017477	8·0141506	8·0262091	8·0379417	8·0493657	8·0604969	29
32	7·9760482	7·9891960	8·0019573	8·0143543	8·0264072	8·0381346	8·0495536	8·0606800	28
33	7·9762706	7·9894117	8·0021669	8·0145580	8·0266053	8·0383274	8·0497414	8·0608630	27
34	7·9764929	7·9896274	8·0023763	8·0147615	8·0268033	8·0385201	8·0499291	8·0610460	26
35	7·9767151	7·9898430	8·0025856	8·0149650	8·0270012	8·0387128	8·0501167	8·0612289	25
36	7·9769372	7·9900585	8·0027949	8·0151684	8·0271990	8·0389053	8·0503043	8·0614117	24
37	7·9771592	7·9902738	8·0030040	8·0153716	8·0273967	8·0390978	8·0504918	8·0615944	23
38	7·9773810	7·9904891	8·0032131	8·0155748	8·0275943	8·0392901	8·0506792	8·0617[illegible]	22
39	7·9776028	7·9907043	8·0034220	8·0157779	8·0277919	8·0394824	8·0508665	8·0619[illegible]	21
40	7·9778244	7·9909194	8·0036308	8·0159808	8·0279893	8·0396746	8·0510537	[illegible]	20
41	7·9780459	7·9911343	8·0038396	8·0161837	8·0281867	8·0398667	8·0512408	8·06[illegible]246	19
42	7·9782673	7·9913491	8·0040482	8·0163865	8·0283839	8·0400588	8·0514279	[illegible]	18
43	7·9784886	7·9915638	8·0042568	8·0165892	8·0285811	8·0402507	8·0516149	[illegible]	17
44	7·9787098	7·9917784	8·0044652	8·0167918	8·0287782	8·0404426	8·0518018	[illegible]	16
45	7·9789309	7·9919929	8·0046735	8·0169943	8·0289752	8·0406343	8·05198[illegible]	[illegible]	15
46	7·9791518	7·9922073	8·0048818	8·0171967	8·0291721	8·0408260	8·05217[illegible]4	[illegible]	14
47	7·9793726	7·9924216	8·0050899	8·0173991	8·02936[illegible]	8·0410176	8·052362[illegible]	[illegible]	13
48	7·9795934	7·9926358	8·0052979	8·0176013	8·0295656	8·0412092	8·0525488	8·063[illegible]	12
49	7·9798140	7·9928499	8·0055059	8·0178034	8·0297623	8·0414006	8·0527351	[illegible]	11
50	7·9800345	7·9930639	8·0057137	8·0180055	8·0299588	8·0415920	8·0529216	[illegible]	10
51	7·9802549	7·9932778	8·0059215	8·0182074	8·0301553	8·0417832	8·0531079	8·06414[illegible]	9
52	7·9804752	7·9934915	8·0061291	8·0184093	8·0303517	8·0419744	8·0532942	[illegible]	8
53	7·9806953	7·9937052	8·0063366	8·0186110	8·0305479	8·0421655	8·0534803	8·06450[illegible]	7
54	7·9809154	7·9939188	8·0065441	8·0188127	8·0307441	8·0423565	8·0536665	[illegible]	6
55	7·9811353	7·9941322	8·0067514	8·0190142	8·0309403	8·0425475	8·0538525	[illegible]	5
56	7·9813552	7·9943456	8·0069587	8·0192157	8·0311364	8·0427383	8·0540384	[illegible]	4
57	7·9815749	[illegible]	8·0071658	8·0194171	8·0313322	8·0429291	[illegible]	8·06[illegible]231[illegible]	3
58	7·9817945	7·9947720	8·0073729	8·0196184	8·0315280	8·0431198	8·0544101	[illegible]	2
59	7·9820140	7·9949850	8·0075798	8·0198196	8·0317238	8·0433104	8·0545958	[illegible]	1
60	7·9822334	7·9951980	8·0077867	8·0200207	8·0319195	8·0435009	8·0547814	8·065[illegible]	0
″	27′	26′	25	24′	23′	22′	21′	20′	″

"	32'	33'	34'	35'	36'	37'	38'	39'	"
0	7·9688886	7·9822534	7·9952192	8·0078092	8·0200445	8·0319446	8·0435274	8·0548094	60
1	7·9691148	7·9824727	7·9954320	8·0080159	8·0202455	8·0321402	8·0437179	8·0549949	59
2	7·9693408	7·9826919	7·9956448	8·0082226	8·0204465	8·0323357	8·0439082	8·0551804	58
3	7·9695667	7·9829110	7·9958574	8·0084292	8·0206473	8·0325311	8·0440985	8·0553658	57
4	7·9697925	7·9831299	7·9960700	8·0086357	8·0208481	8·0327265	8·0442887	8·0555512	56
5	7·9700182	7·9833488	7·9962824	8·0088420	8·0210487	8·0329217	8·0444788	8·0557364	55
6	7·9702438	7·9835675	7·9964947	8·0090483	8·0212493	8·0331169	8·0446689	8·0559216	54
7	7·9704692	7·9837862	7·9967070	8·0092545	8·0214498	8·0333120	8·0448588	8·0561067	53
8	7·9706945	7·9840047	7·9969191	8·0094606	8·0216501	8·0335069	8·0450487	8·0562917	52
9	7·9709198	7·9842231	7·9971311	8·0096666	8·0218504	8·0337018	8·0452385	8·0564767	51
10	7·9711449	7·9844414	7·9973430	8·0098725	8·0220506	8·0338967	8·0454282	8·0566615	50
11	7·9713698	7·9846595	7·9975548	8·0100783	8·0222507	8·0340914	8·0456179	8·0568463	49
12	7·9715947	7·9848777	7·9977666	8·0102840	8·0224507	8·0342860	8·0458074	8·0570310	48
13	7·9718194	7·9850957	7·9979782	8·0104896	8·0226507	8·0344806	8·0459968	8·0572156	47
14	7·9720441	7·9853135	7·9981897	8·0106951	8·0228505	8·0346750	8·0461862	8·0574002	46
15	7·9722686	7·9855313	7·9984011	8·0109005	8·0230502	8·0348694	8·0463755	8·0575846	45
16	7·9724930	7·9857490	7·9986124	8·0111058	8·0232499	8·0350637	8·0465647	8·0577690	44
17	7·9727173	7·9859665	7·9988236	8·0113110	8·0234494	8·0352579	8·0467538	8·0579534	43
18	7·9729414	7·9861839	7·9990346	8·0115161	8·0236489	8·0354520	8·0469429	8·0581376	42
19	7·9731655	7·9864013	7·9992456	8·0117211	8·0238483	8·0356460	8·0471318	8·0583217	41
20	7·9733894	7·9866185	7·9994565	8·0119260	8·0240475	8·0358400	8·0473207	8·0585058	40
21	7·9736132	7·9868356	7·9996673	8·0121308	8·0242467	8·0360338	8·0475095	8·0586898	39
22	7·9738369	7·9870526	7·9998780	8·0123356	8·0244458	8·0362276	8·0476982	8·0588737	38
23	7·9740605	7·9872695	8·0000886	8·0125402	8·0246448	8·0364213	8·0478869	8·0590576	37
24	7·9742840	7·9874862	8·0002991	8·0127447	8·0248437	8·0366149	8·0480754	8·0592414	36
25	7·9745073	7·9877029	8·0005094	8·0129492	8·0250426	8·0368084	8·0482639	8·0594250	35
26	7·9747306	7·9879195	8·0007197	8·0131535	8·0252413	8·0370018	8·0484523	8·0596087	34
27	7·9749537	7·9881359	8·0009298	8·0133578	8·0254399	8·0471951	8·0486406	8·0597922	33
28	7·9751767	7·9883523	8·0011400	8·0135619	8·0256385	8·0373884	8·0488288	8·0599756	32
29	7·9753996	7·9885685	8·0013499	8·0137660	8·0258369	8·0375815	8·0490169	8·0601590	31
30	7·9756224	7·9887847	8·0015598	8·0139699	8·0260353	8·0377746	8·0492050	8·0603423	30
31	7·9758451	7·9890007	8·0017696	8·0141738	8·0262336	8·0379676	8·0493930	8·0605255	29
32	7·9760676	7·9892166	8·0019792	8·0143775	8·0264318	8·0381605	8·0495809	8·0607087	28
33	7·9762901	7·9894324	8·0021888	8·0145812	8·0266299	8·0383533	8·0497687	8·0608918	27
34	7·9765124	7·9896481	8·0023984	8·0147848	8·0268279	8·0385461	8·0499564	8·0610748	26
35	7·9767346	7·9898637	8·0026076	8·0149883	8·0270258	8·0387387	8·0501441	8·0612577	25
36	7·9769567	7·9900792	8·0028169	8·0151916	8·0272236	8·0389313	8·0503317	8·0614405	24
37	7·9771787	7·9902946	8·0030260	8·0153949	8·0274213	8·0391238	8·0505192	8·0616233	23
38	7·9774006	7·9905099	8·0032351	8·0155981	8·0276190	8·0393162	8·0507066	8·0618060	22
39	7·9776224	7·9907251	8·0034441	8·0158012	8·0278166	8·0395085	8·0508939	8·0619886	21
40	7·9778440	7·9909401	8·0036529	8·0160042	8·0280140	8·0397007	8·0510812	8·0621711	20
41	7·9780655	7·9911551	8·0038617	8·0162071	8·0282114	8·0398928	8·0512683	8·0623536	19
42	7·9782870	7·9913699	8·0040703	8·0164099	8·0284087	8·0400849	8·0514554	8·0625359	18
43	7·9785083	7·9915847	8·0042789	8·0166127	8·0286059	8·0402768	8·0516424	8·0627182	17
44	7·9787295	7·9917993	8·0044874	8·0168153	8·0288030	8·0404687	8·0518294	8·0629005	16
45	7·9789506	7·9920138	8·0046957	8·0170178	8·0290000	8·0406605	8·0520162	8·0630826	15
46	7·9791715	7·9922283	8·0049040	8·0172203	8·0291969	8·0408522	8·0522030	8·0632647	14
47	7·9793924	7·9924426	8·0051121	8·0174226	8·0293938	8·0410439	8·0523897	8·0634467	13
48	7·9796131	7·9926568	8·0053202	8·0176248	8·0295905	8·0412354	8·0525763	8·0636286	12
49	7·9798338	7·9928709	8·0055282	8·0178270	8·0297872	8·0414269	8·0527628	8·0638104	11
50	7·9800543	7·9930849	8·0057360	8·0180291	8·0299838	8·0416183	8·0529493	8·0639922	10
51	7·9802747	7·9932988	8·0059438	8·0182310	8·0301802	8·0418096	8·0531356	8·0641739	9
52	7·9804950	7·9935126	8·0061514	8·0184329	8·0303766	8·0420008	8·0533219	8·0643555	8
53	7·9807152	7·9937263	8·0063590	8·0186347	8·0305729	8·0421919	8·0535081	8·0645371	7
54	7·9809353	7·9939199	8·0065665	8·0188364	8·0307692	8·0423829	8·0536942	8·0647185	6
55	7·9811552	7·9941534	8·0067738	8·0190397	8·0309653	8·0425739	8·0538803	8·0648999	5
56	7·9813751	7·9943667	8·0069811	8·0192394	8·0311613	8·0427648	8·0540662	8·0650812	4
57	7·9815948	7·9945800	8·0071883	8·0194408	8·0313573	8·0429555	8·0542522	8·0652625	3
58	7·9818144	7·9947932	8·0073953	8·0196422	8·0315531	8·0431462	8·0544380	8·0654436	2
59	7·9820340	7·9950062	8·0076023	8·0198434	8·0317489	8·0433369	8·0546237	8·0656247	1
60	7·9822534	7·9952192	8·0078092	8·0200445	8·0319446	8·0435274	8·0548094	8·0658057	0
"	27'	26'	25'	24'	23'	22'	21'	20'	"

"	40'	41'	42	43'	44'	45'	46'	47'	"
0	8·0657763	8·0764997	8·0869646	8·0971832	8·1071669	8·1169262	8·1264710	8·1358104	60
1	8·0659572	8·0766762	8·0871369	8·0973515	8·1073314	8·1170870	8·1266283	8·1359644	59
2	8·0661381	8·0768526	8·0873091	8·0975197	8·1074958	8·1172478	8·1267856	8·1361183	58
3	8·0663188	8·0770290	8·0874813	8·0976879	8·1076601	8·1174086	8·1269428	8·1362722	57
4	8·0664993	8·0772052	8·0876534	8·0978560	8·1078244	8·1175691	8·1270999	8·1364260	56
5	8·0666801	8·0773815	8·0878254	8·0980240	8·1079886	8·1177297	8·1272570	8·1365797	55
6	8·0668600	8·0775576	8·0879974	8·0981920	8·1081527	8·1178902	8·1274140	8·1367334	54
7	8·0670411	8·0777337	8·0881692	8·0983599	8·1083169	8·1180507	8·1275710	8·1368871	53
8	8·0672213	8·0779097	8·0883411	8·0985277	8·1084809	8·1182111	8·1277279	8·1370407	52
9	8·0674010	8·0780856	8·0885127	8·0986955	8·1086449	8·1183714	8·1278848	8·1371942	51
10	8·0675820	8·0782611	8·0886843	8·0988632	8·1088088	8·1185317	8·1280416	8·1373477	50
11	8·0677672	8·0784372	8·0888561	8·0990309	8·1089726	8·1186919	8·1281983	8·1375011	49
12	8·0679423	8·0786129	8·0890277	8·0991984	8·1091364	8·1188520	8·1283550	8·1376545	48
13	8·0681223	8·0787886	8·0891991	8·0993659	8·1093001	8·1190121	8·1285117	8·1378078	47
14	8·0683022	8·0789641	8·0893706	8·0995334	8·1094638	8·1191722	8·1286682	8·1379610	46
15	8·0684871	8·0791396	8·0895419	8·0997008	8·1096274	8·1193322	8·1288248	8·1381142	45
16	8·0686619	8·0793151	8·0897134	8·0998681	8·1097909	8·1194921	8·1289812	8·1382674	44
17	8·0688416	8·0794904	8·0898844	8·1000354	8·1099544	8·1196519	8·1291376	8·1384205	43
18	8·0690212	8·0796657	8·0900555	8·1002025	8·1101178	8·1198118	8·1292940	8·1385736	42
19	8·0692006	8·0798409	8·0902266	8·1003697	8·1102812	8·1199715	8·1294503	8·1387265	41
20	8·0693803	8·0800161	8·0903976	8·1005367	8·1104445	8·1201312	8·1296065	8·1388795	40
21	8·0695597	8·0801912	8·0905686	8·1007037	8·1106077	8·1202908	8·1297627	8·1390324	39
22	8·0697390	8·0803662	8·0907394	8·1008706	8·1107709	8·1204504	8·1299188	8·1391852	38
23	8·0699183	8·0805411	8·0909102	8·1010375	8·1109340	8·1206099	8·1300749	8·1393380	37
24	8·0700975	8·0807160	8·0910810	8·1012043	8·1110970	8·1207693	8·1302309	8·1394907	36
25	8·0702766	8·0808908	8·0912516	8·1013710	8·1112600	8·1209287	8·1303869	8·1396434	35
26	8·0704557	8·0810655	8·0914222	8·1015377	8·1114229	8·1210881	8·1305428	8·1397960	34
27	8·0706346	8·0812401	8·0915928	8·1017043	8·1115858	8·1212474	8·1306986	8·1399485	33
28	8·0708135	8·0814147	8·0917632	8·1018709	8·1117486	8·1214066	8·1308544	8·1401011	32
29	8·0709923	8·0815892	8·0919336	8·1020374	8·1119113	8·1215657	8·1310101	8·1402535	31
30	8·0711711	8·0817637	8·0921040	8·1022038	8·1120740	8·1217248	8·1311658	8·1404059	30
31	8·0713498	8·0819380	8·0922743	8·1023701	8·1122366	8·1218839	8·1313215	8·1405583	29
32	8·0715284	8·0821123	8·0924445	8·1025364	8·1123992	8·1220429	8·1314770	8·1407105	28
33	8·0717069	8·0822866	8·0926146	8·1027027	8·1125617	8·1222018	8·1316325	8·1408628	27
34	8·0718854	8·0824607	8·0927847	8·1028688	8·1127241	8·1223607	8·1317880	8·1410150	26
35	8·0720637	8·0826348	8·0929547	8·1030349	8·1128865	8·1225195	8·1319434	8·1411671	25
36	8·0722421	8·0828088	8·0931246	8·1032010	8·1130488	8·1226782	8·1320987	8·1413192	24
37	8·0724203	8·0829826	8·0932945	8·1033669	8·1132110	8·1228369	8·1322540	8·1414712	23
38	8·0725985	8·0831567	8·0934643	8·1035328	8·1133732	8·1229956	8·1324093	8·1416232	22
39	8·0727765	8·0833303	8·0936340	8·1036987	8·1135354	8·1231541	8·1325644	8·1417751	21
40	8·0729546	8·0835042	8·0938037	8·1038645	8·1136974	8·1233127	8·1327196	8·1419270	20
41	8·0731325	8·0836779	8·0939733	8·1040302	8·1138595	8·1234711	8·1328746	8·1420788	19
42	8·0733104	8·0838515	8·0941428	8·1041959	8·1140214	8·1236295	8·1330296	8·1422306	18
43	8·0734882	8·0840251	8·0943123	8·1043615	8·1141833	8·1237879	8·1331846	8·1423823	17
44	8·0736659	8·0841985	8·0944817	8·1045270	8·1143451	8·1239462	8·1333395	8·1425339	16
45	8·0738436	8·0843719	8·0946510	8·1046925	8·1145069	8·1241044	8·1334943	8·1426855	15
46	8·0740211	8·0845452	8·0948203	8·1048579	8·1146686	8·1242626	8·1336491	8·1428371	14
47	8·0741986	8·0847185	8·0949895	8·1050232	8·1148302	8·1244207	8·1338039	8·1429886	13
48	8·0743761	8·0848917	8·0951587	8·1051885	8·1149918	8·1245787	8·1339586	8·1431400	12
49	8·0745534	8·0850648	8·0953277	8·1053537	8·1151534	8·1247367	8·1341132	8·1432914	11
50	8·0747307	8·0852379	8·0954968	8·1055188	8·1153148	8·1248947	8·1342678	8·1434427	10
51	8·0749080	8·0854109	8·0956657	8·1056839	8·1154762	8·1250526	8·1344223	8·1435940	9
52	8·0750851	8·0855839	8·0958346	8·1058490	8·1156376	8·1252104	8·1345767	8·1437453	8
53	8·0752622	8·0857566	8·0960034	8·1060139	8·1157989	8·1253682	8·1347311	8·1438964	7
54	8·0754392	8·0859294	8·0961721	8·1061788	8·1159601	8·1255259	8·1348855	8·1440476	6
55	8·0756161	8·0861021	8·0963408	8·1063437	8·1161213	8·1256836	8·1350398	8·1441987	5
56	8·0757930	8·0862747	8·0965094	8·1065085	8·1162824	8·1258412	8·1351940	8·1443497	4
57	8·0759699	8·0864473	8·0966780	8·1066733	8·1164434	8·1259987	8·1353482	8·1445006	3
58	8·0761465	8·0866198	8·0968465	8·1068379	8·1166044	8·1261562	8·1355023	8·1446516	2
59	8·0763231	8·0867922	8·0970149	8·1070024	8·1167653	8·1263136	8·1356564	8·1448024	1
60	8·0764997	8·0869646	8·0971832	8·1071669	8·1169262	8·1264710	8·1358104	8·1449532	0
"	19'	18'	17'	16'	15'	14'	13'	12'	"

″	40′	41′	42′	43′	44′	45′	46′	47′	″
0	8·0658057	8·0765306	8·0869970	8·0972172	8·1072025	8·1169634	8·1265099	8·1358510	60
1	8·0659866	8·0767071	8·0871694	8·0973855	8·1073670	8·1171243	8·1266672	8·1360050	59
2	8·0661675	8·0768835	8·0873416	8·0975538	8·1075314	8·1172851	8·1268245	8·1361590	58
3	8·0663483	8·0770599	8·0875138	8·0977220	8·1076958	8·1174458	8·1269817	8·1363129	57
4	8·0665290	8·0772362	8·0876859	8·0978901	8·1078601	8·1176064	8·1271389	8·1364667	56
5	8·0667096	8·0774125	8·0878579	8·0980582	8·1080243	8·1177670	8·1272960	8·1366205	55
6	8·0668902	8·0775886	8·0880299	8·0982261	8·1081885	8·1179276	8·1274531	8·1367742	54
7	8·0670707	8·0777647	8·0882018	8·0983941	8·1083526	8·1180881	8·1276101	8·1369279	53
8	8·0672511	8·0779407	8·0883737	8·0985619	8·1085167	8·1182485	8·1277670	8·1370815	52
9	8·0674314	8·0781167	8·0885455	8·0987297	8·1086807	8·1184088	8·1279239	8·1372350	51
10	8·0676117	8·0782926	8·0887172	8·0988975	8·1088446	8·1185691	8·1280807	8·1373886	50
11	8·0677919	8·0784684	8·0888888	8·0990651	8·1090085	8·1187294	8·1282375	8·1375420	49
12	8·0679720	8·0786441	8·0890604	8·0992327	8·1091723	8·1188896	8·1283942	8·1376954	48
13	8·0681520	8·0788198	8·0892319	8·0994003	8·1093461	8·1190497	8·1285509	8·1378488	47
14	8·0683320	8·0789954	8·0894033	8·0995677	8·1094998	8·1192098	8·1287075	8·1380020	46
15	8·0685118	8·0791709	8·0895747	8·0997351	8·1096634	8·1193698	8·1288641	8·1381553	45
16	8·0686917	8·0793464	8·0897460	8·0999025	8·1098269	8·1195297	8·1290206	8·1383085	44
17	8·0688714	8·0795218	8·0899172	8·1000698	8·1099904	8·1196896	8·1291770	8·1384616	43
18	8·0690511	8·0796971	8·0900884	8·1002370	8·1101539	8·1198495	8·1293334	8·1386147	42
19	8·0692306	8·0798723	8·0902595	8·1004041	8·1103173	8·1200092	8·1294897	8·1387677	41
20	8·0694102	8·0800475	8·0904305	8·1005712	8·1104806	8·1201689	8·1296460	8·1389207	40
21	8·0695896	8·0802226	8·0906015	8·1007382	8·1106438	8·1203286	8·1298022	8·1390736	39
22	8·0697690	8·0803976	8·0907724	8·1009052	8·1108070	8·1204882	8·1299583	8·1392264	38
23	8·0699483	8·0805726	8·0909432	8·1010721	8·1109702	8·1206477	8·1301144	8·1393792	37
24	8·0701275	8·0807475	8·0911140	8·1012389	8·1111332	8·1208072	8·1302705	8·1395320	36
25	8·0703066	8·0809223	8·0912847	8·1014057	8·1112962	8·1209666	8·1304265	8·1396847	35
26	8·0704857	8·0810970	8·0914553	8·1015724	8·1114592	8·1211260	8·1305824	8·1398373	34
27	8·0706647	8·0812717	8·0916259	8·1017390	8·1116221	8·1212853	8·1307383	8·1399899	33
28	8·0708436	8·0814463	8·0917964	8·1019056	8·1117849	8·1214446	8·1308941	8·1401425	32
29	8·0710225	8·0816208	8·0919668	8·1020721	8·1119477	8·1216037	8·1310498	8·1402949	31
30	8·0712012	8·0817953	8·0921372	8·1022386	8·1121104	8·1217629	8·1312056	8·1404474	30
31	8·0713799	8·0819697	8·0923075	8·1024049	8·1122730	8·1219219	8·1313612	8·1405997	29
32	8·0715586	8·0821440	8·0924777	8·1025713	8·1124356	8·1220810	8·1315168	8·1407521	28
33	8·0717371	8·0823183	8·0926479	8·1027375	8·1125981	8·1222399	8·1316723	8·1409043	27
34	8·0719156	8·0824925	8·0928180	8·1029037	8·1127606	8·1223988	8·1318278	8·1410566	26
35	8·0720940	8·0826666	8·0929880	8·1030698	8·1129230	8·1225577	8·1319833	8·1412087	25
36	8·0722723	8·0828406	8·0931579	8·1032359	8·1130853	8·1227164	8·1321386	8·1413608	24
37	8·0724506	8·0830146	8·0933278	8·1034019	8·1132476	8·1228752	8·1322940	8·1415129	23
38	8·0726288	8·0831885	8·0934977	8·1035678	8·1134098	8·1230338	8·1324492	8·1416649	22
39	8·0728069	8·0833624	8·0936674	8·1037337	8·1135720	8·1231924	8·1326044	8·1418168	21
40	8·0729850	8·0835361	8·0938371	8·1038995	8·1137341	8·1233510	8·1327596	8·1419687	20
41	8·0731629	8·0837098	8·0940068	8·1040653	8·1138961	8·1235095	8·1329147	8·1421206	19
42	8·0733408	8·0838835	8·0941763	8·1042309	8·1140581	8·1236679	8·1330697	8·1422724	18
43	8·0735186	8·0840570	8·0943458	8·1043966	8·1142200	8·1238263	8·1332247	8·1424241	17
44	8·0736964	8·0842305	8·0945153	8·1045621	8·1143819	8·1239846	8·1333796	8·1425758	16
45	8·0738741	8·0844039	8·0946846	8·1047276	8·1145437	8·1241429	8·1335345	8·1427274	15
46	8·0740517	8·0845773	8·0948539	8·1048931	8·1147054	8·1243011	8·1336893	8·1428790	14
47	8·0742292	8·0847506	8·0950232	8·1050584	8·1148671	8·1244592	8·1338441	8·1430305	13
48	8·0744067	8·0849238	8·0951924	8·1052237	8·1150287	8·1246173	8·1339988	8·1431819	12
49	8·0745841	8·0850969	8·0953614	8·1053890	8·1151903	8·1247753	8·1341535	8·1433334	11
50	8·0747614	8·0852700	8·0955305	8·1055542	8·1153518	8·1249333	8·1343081	8·1434848	10
51	8·0749386	8·0854430	8·0956994	8·1057193	8·1155132	8·1250912	8·1344626	8·1436361	9
52	8·0751158	8·0856160	8·0958683	8·1058843	8·1156746	8·1252491	8·1346171	8·1437874	8
53	8·0752929	8·0857888	8·0960372	8·1060493	8·1158359	8·1254069	8·1347715	8·1439386	7
54	8·0754699	8·0859616	8·0962060	8·1062142	8·1159972	8·1255646	8·1349259	8·1440897	6
55	8·0756469	8·0861344	8·0963747	8·1063791	8·1161584	8·1257223	8·1350802	8·1442408	5
56	8·0758238	8·0863070	8·0965433	8·1065439	8·1163195	8·1258799	8·1352345	8·1443919	4
57	8·0760006	8·0864796	8·0967119	8·1067087	8·1164806	8·1260375	8·1353887	8·1445429	3
58	8·0761773	8·0866522	8·0968804	8·1068733	8·1166416	8·1261950	8·1355429	8·1446938	2
59	8·0763540	8·0868246	8·0970488	8·1070380	8·1168025	8·1263525	8·1356970	8·1448447	1
60	8·0765306	8·0869970	8·0972172	8·1072025	8·1169634	8·1265099	8·1358510	8·1449956	0
″	19′	18′	17′	16′	15′	14′	13′	12′	″

LOG. COTANGENTS. 89 Deg.

″	48′	49′	50′	51′	52′	53′	54′	55′	″
0	8·1449532	8·1539075	8·1626808	8·1712804	8·1797129	8·1879848	8·1961020	8·2040703	60
1	8·1451040	8·1540553	8·1628253	8·1714223	8·1798521	8·1881213	8·1962360	8·2042019	59
2	8·1452547	8·1542028	8·1629702	8·1715641	8·1799912	8·1882578	8·1963700	[illegible]	58
3	8·1454054	8·1543504	8·1631149	8·1717059	8·1801304	8·1883943	8·1965039	[illegible]	57
4	8·1455560	8·1544979	8·1632594	8·1718477	8·1802693	8·1885307	8·1966378	[illegible]	56
5	8·1457065	8·1546454	8·1634040	8·1719894	8·1804083	8·1886670	8·1967717	8·2047277	55
6	8·1458570	8·1547928	8·1635485	8·1721310	8·1805472	8·1888034	8·1969055	8·2048591	54
7	8·1460075	8·1549402	8·1636929	8·1722726	8·1806861	8·1889397	8·1970392	8·2049905	53
8	8·1461579	8·1550876	8·1638373	8·1724142	8·1808250	8·1890759	8·1971729	[illegible]	52
9	8·1463082	8·1552348	8·1639817	8·1725557	8·1809638	8·1892121	8·1973066	[illegible]	51
10	8·1464585	8·1553821	8·1641259	8·1726972	8·1811025	8·1893482	8·1974403	[illegible]	50
11	8·1466087	8·1555293	8·1642702	8·1728386	8·1812413	8·1894843	8·1975739	[illegible]	49
12	8·1467589	8·1556764	8·1644144	8·1729800	8·1813799	8·1896204	8·1977074	[illegible]	48
13	8·1469091	8·1558235	8·1645586	8·1731214	8·1815186	8·1897564	8·1978409	8·2057770	47
14	8·1470591	8·1559705	8·1647027	8·1732627	8·1816571	8·1898924	8·1979744	[illegible]	46
15	8·1472092	8·1561175	8·1648467	8·1734039	8·1817957	8·1900284	8·1981078	[illegible]	45
16	8·1473592	8·1562644	8·1649907	8·1735451	8·1819342	8·1901643	8·1982412	[illegible]	44
17	8·1475091	8·1564113	8·1651347	8·1736863	8·1820726	8·1903001	8·1983746	[illegible]	43
18	8·1476590	8·1565582	8·1652786	8·1738274	8·1822111	8·1904359	8·1985079	8·2064325	42
19	8·1478088	8·1567049	8·1654225	8·1739684	8·1823494	8·1905717	8·1986412	[illegible]	41
20	8·1479586	8·1568517	8·1655663	8·1741094	8·1824877	8·1907074	8·1987744	[illegible]	40
21	8·1481083	8·1569984	8·1657101	8·1742504	8·1826260	8·1908431	8·1989076	[illegible]	39
22	8·1482579	8·1571450	8·1658538	8·1743913	8·1827643	8·1909788	8·1990407	[illegible]	38
23	8·1484076	8·1572916	8·1659975	8·1745322	8·1829024	8·1911144	8·1991738	[illegible]	37
24	8·1485571	8·1574381	8·1661411	8·1746731	8·1830406	8·1912499	8·1993069	[illegible]	36
25	8·1487066	8·1575846	8·1662847	8·1748138	8·1831787	8·1913854	8·1994399	[illegible]	35
26	8·1488561	8·1577310	8·1664282	8·1749546	8·1833167	8·1915209	8·1995729	[illegible]	34
27	8·1490055	8·1578774	8·1665717	8·1750953	8·1834548	8·1916563	8·1997058	[illegible]	33
28	8·1491549	8·1580238	8·1667151	8·1752359	8·1835927	8·1917917	8·1998387	[illegible]	32
29	8·1493042	8·1581701	8·1668585	8·1753765	8·1837307	8·1919271	8·1999716	[illegible]	31
30	8·1494534	8·1583163	8·1670019	8·1755171	8·1838685	8·1920624	8·2001044	[illegible]	30
31	8·1496027	8·1584625	8·1671452	8·1756576	8·1840064	8·1921976	8·2002372	[illegible]	29
32	8·1497518	8·1586086	8·1672884	8·1757981	8·1841442	8·1923328	8·2003699	[illegible]	28
33	8·1499009	8·1587547	8·1674316	8·1759385	8·1842819	8·1924680	8·2005026	[illegible]	27
34	8·1500500	8·1589008	8·1675748	8·1760789	8·1844196	8·1926032	8·2006353	[illegible]	26
35	8·1501990	8·1590468	8·1677179	8·1762192	8·1845573	8·1927383	8·2007679	[illegible]	25
36	8·1503479	8·1591927	8·1678610	8·1763595	8·1846949	8·1928733	8·2009005	[illegible]	24
37	8·1504968	8·1593386	8·1680040	8·1764998	8·1848325	8·1930083	8·2010330	[illegible]	23
38	8·1506457	8·1594845	8·1681469	8·1766400	8·1849700	8·1931433	8·2011655	[illegible]	22
39	8·1507945	8·1596303	8·1682899	8·1767801	8·1851075	8·1932782	8·2012980	[illegible]	21
40	8·1509432	8·1597760	8·1684327	8·1769202	8·1852450	8·1934131	8·2014304	[illegible]	20
41	8·1510919	8·1599217	8·1685756	8·1770603	8·1853824	8·1935479	8·2015628	8·2094344	19
42	8·1512406	8·1600674	8·1687183	8·1772003	8·1855197	8·1936827	8·2016951	[illegible]	18
43	8·1513891	8·1602130	8·1688611	8·1773403	8·1856570	8·1938175	8·2018274	[illegible]	17
44	8·1515377	8·1603585	8·1690038	8·1774802	8·1857943	8·1939522	8·2019597	[illegible]	16
45	8·1516862	8·1605040	8·1691464	8·1776201	8·1859315	8·1940869	8·2020919	[illegible]	15
46	[illegible]	[illegible]	8·1692890	8·1777599	8·1860687	8·1942215	8·2022241	[illegible]	14
47	[illegible]	8·1607949	8·1694315	8·1778997	8·1862059	8·1943561	8·2023562	[illegible]	13
48	8·1521311	8·1609403	8·1695740	8·1780394	8·1863430	8·1944907	8·2024883	[illegible]	12
49	8·1522795	8·1610856	8·1697165	8·1781791	8·1864800	8·1946252	8·2026204	[illegible]	11
50	8·1524279	8·1612308	8·1698589	8·1783188	8·1866170	8·1947596	8·2027524	[illegible]	10
51	8·1525761	8·1613761	8·1700012	8·1784584	8·1867540	8·1948941	8·2028844	[illegible]	9
52	8·1527242	8·1615212	8·1701435	8·1785980	8·1868909	8·1950284	8·2030163	[illegible]	8
53	8·1528723	8·1616664	8·1702858	8·1787375	8·1870278	8·1951628	8·2031481	[illegible]	7
54	8·1530203	8·1618114	8·1704280	8·1788770	8·1871646	8·1952971	8·2032800	[illegible]	6
55	8·1531683	8·1619564	8·1705702	8·1790164	8·1873014	8·1954313	8·2034118	[illegible]	5
56	8·1533163	8·1621014	8·1707123	8·1791558	8·1874382	8·1955656	8·2035436	[illegible]	4
57	8·1534641	8·1622463	8·1708544	8·1792951	8·1875749	8·1956997	8·2036753	[illegible]	3
58	8·1536120	8·1623912	8·1709964	8·1794344	8·1877116	8·1958339	8·2038070	[illegible]	2
59	8·1537598	8·1625360	8·1711384	8·1795737	8·1878482	8·1959680	8·2039387	[illegible]	1
60	8·1539075	8·1626808	8·1712804	8·1797129	8·1879848	8·1961020	8·2040703	[illegible]	0
′	11′	10′	9′	8′	7′	6′	5′	4′	′

″	48′	49′	50′	51′	52	53′	54′	55′	″
0	8·1449956	8·1539516	8·1627267	8·1713282	8·1797626	8·1880364	8·1961556	8·2041259	60
1	8·1451464	8·1540993	8·1628715	8·1714701	8·1799018	8·1881730	8·1962896	8·2042575	59
2	8·1452971	8·1542470	8·1630162	8·1716120	8·1800409	8·1883095	8·1964236	8·2043890	58
3	8·1454478	8·1543946	8·1631609	8·1717538	8·1801800	8·1884460	8·1965576	8·2045206	57
4	8·1455984	8·1545422	8·1633055	8·1718956	8·1803191	8·1885824	8·1966915	8·2046521	56
5	8·1457490	8·1546897	8·1634501	8·1720373	8·1804581	8·1887188	8·1968254	8·2047835	55
6	8·1458995	8·1548371	8·1635946	8·1721790	8·1805971	8·1888552	8·1969592	8·2049149	54
7	8·1460500	8·1549846	8·1637391	8·1723207	8·1807360	8·1889915	8·1970930	8·2050463	53
8	8·1462004	8·1551319	8·1638835	8·1724623	8·1808749	8·1891278	8·1972268	8·2051776	52
9	8·1463508	8·1552792	8·1640279	8·1726038	8·1810137	8·1892640	8·1973605	8·2053089	51
10	8·1465011	8·1554265	8·1641722	8·1727453	8·1811525	8·1894002	8·1974942	8·2054401	50
11	8·1466514	8·1555737	8·1643165	8·1728868	8·1812913	8·1895363	8·1976278	8·2055714	49
12	8·1468016	8·1557209	8·1644607	8·1730282	8·1814300	8·1896724	8·1977614	8·2057025	48
13	8·1469518	8·1558680	8·1646049	8·1731696	8·1815687	8·1898085	8·1978949	8·2058337	47
14	8·1471019	8·1560151	8·1647490	8·1733109	8·1817073	8·1899445	8·1980284	8·2059647	46
15	8·1472520	8·1561621	8·1648931	8·1734522	8·1818459	8·1900805	8·1981619	8·2060958	45
16	8·1474020	8·1563090	8·1650372	8·1735934	8·1819844	8·1902164	8·1982953	8·2062268	44
17	8·1475519	8·1564559	8·1651812	8·1737346	8·1821229	8·1903523	8·1984287	8·2063578	43
18	8·1477018	8·1566028	8·1653251	8·1738757	8·1822613	8·1904881	8·1985621	8·2064887	42
19	8·1478517	8·1567496	8·1654690	8·1740168	8·1823997	8·1906239	8·1986954	8·2066196	41
20	8·1480015	8·1568964	8·1656128	8·1741579	8·1825381	8·1907597	8·1988286	8·2067505	40
21	8·1481512	8·1570431	8·1657566	8·1742989	8·1826764	8·1908954	8·1989619	8·2068813	39
22	8·1483009	8·1571898	8·1659004	8·1744398	8·1828146	8·1910311	8·1990950	8·2070120	38
23	8·1484506	8·1573364	8·1660441	8·1745807	8·1829529	8·1911667	8·1992282	8·2071428	37
24	8·1486002	8·1574830	8·1661878	8·1747216	8·1830910	8·1913023	8·1993613	8·2072735	36
25	8·1487497	8·1576295	8·1663314	8·1748624	8·1832292	8·1914379	8·1994943	8·2074041	35
26	8·1488992	8·1577759	8·1664749	8·1750032	8·1833673	8·1915734	8·1996273	8·2075348	34
27	8·1490487	8·1579224	8·1666185	8·1751439	8·1835053	8·1917088	8·1997603	8·2076653	33
28	8·1491980	8·1580687	8·1667619	8·1752846	8·1836433	8·1918442	8·1998933	8·2077959	32
29	8·1493474	8·1582151	8·1669054	8·1754252	8·1837813	8·1919796	8·2000262	8·2079264	31
30	8·1494967	8·1583613	8·1670487	8·1755658	8·1839192	8·1921150	8·2001590	8·2080568	30
31	8·1496459	8·1585076	8·1671921	8·1757064	8·1840571	8·1922503	8·2002918	8·2081873	29
32	8·1497951	8·1586537	8·1673353	8·1758469	8·1841949	8·1923855	8·2004246	8·2083176	28
33	8·1499442	8·1587999	8·1674786	8·1759873	8·1843327	8·1925207	8·2005573	8·2084480	27
34	8·1500933	8·1589459	8·1676218	8·1761278	8·1844704	8·1926559	8·2006900	8·2085783	26
35	8·1502423	8·1590920	8·1677649	8·1762681	8·1846081	8·1927910	8·2008227	8·2087086	25
36	8·1503913	8·1592379	8·1679080	8·1764084	8·1847458	8·1929261	8·2009553	8·2088388	24
37	8·1505402	8·1593839	8·1680510	8·1765487	8·1848834	8·1930611	8·2010879	8·2089690	23
38	8·1506891	8·1595297	8·1681940	8·1766889	8·1850209	8·1931961	8·2012204	8·2090991	22
39	8·1508380	8·1596756	8·1683370	8·1768291	8·1851585	8·1933311	8·2013529	8·2092292	21
40	8·1509867	8·1598213	8·1684799	8·1769693	8·1852959	8·1934660	8·2014853	8·2093593	20
41	8·1511355	8·1599671	8·1686228	8·1771094	8·1854334	8·1936009	8·2016177	8·2094893	19
42	8·1512841	8·1601128	8·1687656	8·1772494	8·1855708	8·1937357	8·2017501	8·2096193	18
43	8·1514328	8·1602584	8·1689083	8·1773894	8·1857081	8·1938705	8·2018824	8·2097493	17
44	8·1515813	8·1604040	8·1690510	8·1775294	8·1858454	8·1940053	8·2020147	8·2098792	16
45	8·1517299	8·1605495	8·1691937	8·1776693	8·1859827	8·1941400	8·2021470	8·2100091	15
46	8·1518783	8·1606950	8·1693363	8·1778091	8·1861199	8·1942746	8·2022792	8·2101389	14
47	8·1520267	8·1608404	8·1694789	8·1779490	8·1862571	8·1944093	8·2024113	8·2102687	13
48	8·1521751	8·1609858	8·1696214	8·1780887	8·1863942	8·1945439	8·2025435	8·2103985	12
49	8·1523234	8·1611312	8·1697639	8·1782285	8·1865313	8·1946784	8·2026756	8·2105282	11
50	8·1524717	8·1612765	8·1699064	8·1783682	8·1866683	8·1948129	8·2028076	8·2106579	10
51	8·1526199	8·1614217	8·1700487	8·1785078	8·1868053	8·1949473	8·2029396	8·2107875	9
52	8·1527681	8·1615669	8·1701911	8·1786474	8·1869423	8·1950818	8·2030716	8·2109171	8
53	8·1529162	8·1617121	8·1703334	8·1787870	8·1870792	8·1952161	8·2032035	8·2110467	7
54	8·1530643	8·1618572	8·1704756	8·1789265	8·1872161	8·1953505	8·2033354	8·2111762	6
55	8·1532123	8·1620022	8·1706178	8·1790659	8·1873529	8·1954848	8·2034672	8·2113057	5
56	8·1533603	8·1621472	8·1707600	8·1792054	8·1874897	8·1956190	8·2035990	8·2114351	4
57	8·1535082	8·1622922	8·1709021	8·1793447	8·1876264	8·1957532	8·2037308	8·2115646	3
58	8·1536560	8·1624371	8·1710442	8·1794841	8·1877631	8·1958874	8·2038625	8·2116939	2
59	8·1538038	8·1625819	8·1711862	8·1796233	8·1878998	8·1960215	8·2039942	8·2118233	1
60	8·1539516	8·1627267	8·1713282	8·1797626	8·1880364	8·1961556	8·2041259	8·2119526	0
″	11′	10′	9′	8′	7′	6′	5′	4′	″

"	56'	57'	58'	59	0'	1	2'	3	"
0	8·2118949	8·2195811	8·2271335	8·2345568	8·2418553	8·2490332	8·2560943	8·2630424	60
1	8·2120242	8·2197080	8·2272588	8·2346795	8·2419759	8·2491518	8·2562110	8·2631577	59
2	8·2121533	8·2198349	8·2273836	8·2348021	8·2420965	8·2492704	8·2563277	8·2632721	58
3	8·2122825	8·2199618	8·2275077	8·2349247	8·2422170	8·2493890	8·2564444	8·2633865	57
4	8·2124116	8·2200887	8·2276324	8·2350472	8·2423376	8·2495075	8·2565609	8·2635016	56
5	8·2125407	8·2202155	8·2277570	8·2351697	8·2424580	8·2496260	8·2566775	8·2636164	55
6	8·2126697	8·2203423	8·2278816	8·2352922	8·2425785	8·2497445	8·2567941	8·2637311	54
7	8·2127987	8·2204690	8·2280061	8·2354147	8·2426989	8·2498629	8·2569106	8·2638458	53
8	8·2129277	8·2205957	8·2281306	8·2355371	8·2428192	8·2499813	8·2570271	8·2639604	52
9	8·2130566	8·2207223	8·2282551	8·2356594	8·2429396	8·2500997	8·2571435	8·2640750	51
10	8·2131854	8·2208490	8·2283796	8·2357818	8·2430599	8·2502180	8·2572600	8·2641896	50
11	8·2133143	8·2209756	8·2285040	8·2359041	8·2431802	8·2503363	8·2573764	8·2643042	49
12	8·2134431	8·2211021	8·2286284	8·2360264	8·2433004	8·2504546	8·2574928	8·2644187	48
13	8·2135719	8·2212286	8·2287527	8·2361486	8·2434206	8·2505728	8·2576091	8·2645332	47
14	8·2137006	8·2213551	8·2288770	8·2362708	8·2435408	8·2506911	8·2577255	8·2646477	46
15	8·2138293	8·2214815	8·2290013	8·2363930	8·2436609	8·2508092	8·2578417	8·2647621	45
16	8·2139579	8·2216079	8·2291255	8·2365151	8·2437810	8·2509274	8·2579580	8·2648766	44
17	8·2140865	8·2217343	8·2292497	8·2366372	8·2439011	8·2510455	8·2580742	8·2649909	43
18	8·2142151	8·2218606	8·2293739	8·2367593	8·2440212	8·2511636	8·2581904	8·2651053	42
19	8·2143436	8·2219869	8·2294980	8·2368813	8·2441412	8·2512816	8·2583065	8·2652196	41
20	8·2144721	8·2221132	8·2296221	8·2370033	8·2442611	8·2513996	8·2584227	8·2653339	40
21	8·2146006	8·2222394	8·2297461	8·2371253	8·2443811	8·2515176	8·2585388	8·2654482	39
22	8·2147290	8·2223656	8·2298701	8·2372472	8·2445010	8·2516356	8·2586548	8·2655624	38
23	8·2148574	8·2224917	8·2299941	8·2373691	8·2446209	8·2517535	8·2587709	8·2656766	37
24	8·2149857	8·2226178	8·2301181	8·2374910	8·2447407	8·2518714	8·2588869	8·2657908	36
25	8·2151140	8·2227439	8·2302420	8·2376128	8·2448605	8·2519893	8·2590028	8·2659049	35
26	8·2152423	8·2228699	8·2303659	8·2377346	8·2449803	8·2521071	8·2591188	8·2660190	34
27	8·2153705	8·2229959	8·2304897	8·2378563	8·2451000	8·2522249	8·2592347	8·2661331	33
28	8·2154987	8·2231219	8·2306135	8·2379781	8·2452198	8·2523425	8·2593505	8·2662471	32
29	8·2156269	8·2232478	8·2307373	8·2380997	8·2453394	8·2524604	8·2594664	8·2663612	31
30	8·2157550	8·2233737	8·2308610	8·2382214	8·2454591	8·2525781	8·2595822	8·2664751	30
31	8·2158831	8·2234996	8·2309847	8·2383430	8·2455787	8·2526957	8·2596980	8·2665891	29
32	8·2160111	8·2236254	8·2311084	8·2384646	8·2456983	8·2528134	8·2598137	8·2667030	28
33	8·2161391	8·2237512	8·2312320	8·2385862	8·2458178	8·2529310	8·2599295	8·2668169	27
34	8·2162671	8·2238769	8·2313556	8·2387077	8·2459373	8·2530485	8·2600452	8·2669308	26
35	8·2163950	8·2240026	8·2314792	8·2388292	8·2460568	8·2531661	8·2601604	8·2670446	25
36	8·2165229	8·2241283	8·2316027	8·2389506	8·2461762	8·2532836	8·2602764	8·2671584	24
37	8·2166508	8·2242539	8·2317262	8·2390720	8·2462957	8·2534011	8·2603920	8·2672722	23
38	8·2167786	8·2243795	8·2318496	8·2391934	8·2464150	8·2535185	8·2605076	8·2673860	22
39	8·2169064	8·2245051	8·2319731	8·2393148	8·2465344	8·2536359	8·2606232	8·2674997	21
40	8·2170341	8·2246306	8·2320965	8·2394361	8·2466537	8·2537533	8·2607387	8·2676134	20
41	8·2171618	8·2247561	8·2322198	8·2395574	8·2467730	8·2538706	8·2608541	8·2677271	19
42	8·2172895	8·2248815	8·2323431	8·2396786	8·2468922	8·2539880	8·2609696	8·2678407	18
43	8·2174171	8·2250070	8·2324664	8·2397998	8·2470115	8·2541052	8·2610850	8·2679543	17
44	8·2175447	8·2251323	8·2325896	8·2399210	8·2471306	8·2542225	8·2612004	8·2680679	16
45	8·2176723	8·2252577	8·2327128	8·2400422	8·2472498	8·2543397	8·2613157	8·2681814	15
46	8·2177998	8·2253830	8·2328360	8·2401633	8·2473689	8·2544569	8·2614311	8·2682949	14
47	8·2179273	8·2255083	8·2329592	8·2402844	8·2474880	8·2545741	8·2615463	8·2684084	13
48	8·2180547	8·2256335	8·2330823	8·2404054	8·2476071	8·2546912	8·2616616	8·2685219	12
49	8·2181821	8·2257587	8·2332053	8·2405264	8·2477261	8·2548083	8·2617768	8·2686353	11
50	8·2183095	8·2258839	8·2333284	8·2406474	8·2478451	8·2549254	8·2618920	8·2687487	10
51	8·2184368	8·2260090	8·2334514	8·2407683	8·2479640	8·2550424	8·2620072	8·2688620	9
52	8·2185641	8·2261341	8·2335743	8·2408892	8·2480829	8·2551594	8·2621223	8·2689754	8
53	8·2186913	8·2262591	8·2336973	8·2410101	8·2482018	8·2552764	8·2622375	8·2690887	7
54	8·2188186	8·2263841	8·2338202	8·2411310	8·2483207	8·2553933	8·2623525	[illegible]	6
55	8·2189457	8·2265091	8·2339430	8·2412518	8·2484395	8·2555102	8·2624676	[illegible]	5
56	8·2190729	8·2266341	8·2340659	8·2413725	8·2485583	8·2556271	8·2625826	[illegible]	4
57	8·2192000	8·2267590	8·2341886	8·2414933	8·2486771	8·2557439	8·2626976	[illegible]	3
58	8·2193270	8·2268839	8·2343114	8·2416140	8·2487958	8·2558607	[illegible]	[illegible]	2
59	8·2194541	8·2270087	8·2344341	8·2417347	8·2489145	8·2559775	8·2629275	[illegible]	1
60	8·2195811	8·2271335	8·2345568	8·2418553	8·2490332	8·2560943	8·2630424	[illegible]	0
"	3'	2'	1	0'	59'	58	57	56	

"	56′	57′	58′	59′	0′	1′	2′	3′	"
0	8·2119520	8·2196408	8·2271953	8·2346208	8·2419215	8·2491015	8·2561649	8·2631153	60
1	8·2120818	8·2197677	8·2273201	8·2347433	8·2420421	8·2492202	8·2562817	8·2632302	59
2	8·2122110	8·2198947	8·2274449	8·2348661	8·2421627	8·2493388	8·2563984	8·2633451	58
3	8·2123402	8·2200216	8·2275695	8·2349887	8·2422833	8·2494574	8·2565151	8·2634599	57
4	8·2124694	8·2201484	8·2276941	8·2351113	8·2424038	8·2495760	8·2566317	8·2635747	56
5	8·2125985	8·2202754	8·2278190	8·2352339	8·2425244	8·2496946	8·2567484	8·2636895	55
6	8·2127275	8·2204022	8·2279436	8·2353564	8·2426448	8·2498131	8·2568650	8·2638043	54
7	8·2128566	8·2205289	8·2280682	8·2354789	8·2427653	8·2499315	8·2569815	8·2639190	53
8	8·2129855	8·2206557	8·2281927	8·2356013	8·2428857	8·2500500	8·2570981	8·2640337	52
9	8·2131145	8·2207824	8·2283173	8·2357237	8·2430061	8·2501684	8·2572146	8·2641483	51
10	8·2132434	8·2209090	8·2284417	8·2358461	8·2431264	8·2502868	8·2573310	8·2642630	50
11	8·2133723	8·2210356	8·2285662	8·2359684	8·2432467	8·2504051	8·257447	8·2643776	49
12	8·2135011	8·2211622	8·2286906	8·2360908	8·2433670	8·2505234	8·2575638	8·2644921	48
13	8·2136299	8·2212888	8·2288150	8·2362130	8·2434872	8·2506417	8·2576803	8·2646067	47
14	8·2137587	8·2214154	8·2289394	8·2363353	8·2436075	8·2507600	8·2577966	8·2647212	46
15	8·2138874	8·2215418	8·2290636	8·2364575	8·2437276	8·2508782	8·2579128	8·2648357	45
16	8·2140161	8·2216682	8·2291879	8·2365796	8·2438478	8·2509964	8·2580292	8·2649501	44
17	8·2141447	8·2217946	8·2293121	8·2367018	8·2439679	8·2511145	8·258146	8·2650645	43
18	8·2142733	8·2219210	8·2294364	8·2368239	8·2440880	8·2512326	8·2582617	8·2651789	42
19	8·2144019	8·2220473	8·2295605	8·2369460	8·2442080	8·2513507	8·2583778	8·2652933	41
20	8·2145304	8·2221736	8·2296846	8·2370680	8·2443280	8·2514688	8·2584941	8·2654076	40
21	8·2146589	8·2222998	8·2298087	8·2371900	8·2444480	8·2515868	8·2586102	8·2655219	39
22	8·2147874	8·2224260	8·2299327	8·2373120	8·2445680	8·2517048	8·2587263	8·2656362	38
23	8·2149158	8·2225522	8·2300568	8·2374339	8·2446879	8·2518227	8·2588424	8·2657504	37
24	8·2150442	8·2226784	8·2301807	8·2375558	8·2448077	8·2519407	8·2589584	8·2658646	36
25	8·2151725	8·2228045	8·2303047	8·2376776	8·2449276	8·2520586	8·2590744	8·2659788	35
26	8·2153008	8·2229305	8·2304286	8·2377995	8·2450474	8·2521764	8·2591904	8·2660929	34
27	8·2154291	8·2230566	8·2305525	8·2379213	8·2451672	8·2522943	8·2593064	8·2662071	33
28	8·2155573	8·2231826	8·2306764	8·2380430	8·2452869	8·2524121	8·2594223	8·2663212	32
29	8·2156855	8·2233085	8·2308001	8·2381648	8·2454066	8·2525294	8·2595381	8·2664352	31
30	8·2158137	8·2234345	8·2309238	8·2382865	8·2455264	8·2526476	8·2596540	8·2665492	30
31	8·2159418	8·2235604	8·2310476	8·2384081	8·2456460	8·2527653	8·2597699	8·2666632	29
32	8·2160699	8·2236862	8·2311713	8·2385297	8·2457656	8·2528829	8·2598856	8·2667772	28
33	8·2161979	8·2238120	8·2312950	8·2386513	8·2458852	8·2530006	8·2600014	8·2668911	27
34	8·2163259	8·2239378	8·2314186	8·2387729	8·2460047	8·2531182	8·2601171	8·2670051	26
35	8·2164539	8·2240635	8·2315422	8·2388944	8·2461242	8·2532358	8·2602328	8·2671189	25
36	8·2165818	8·2241892	8·2316658	8·2390159	8·2462437	8·2533533	8·2603485	8·2672328	24
37	8·2167097	8·2243149	8·2317893	8·2391373	8·2463632	8·2534708	8·2604641	8·2673466	23
38	8·2168375	8·2244405	8·2319128	8·2392588	8·2464826	8·2535883	8·2605797	8·2674604	22
39	8·2169653	8·2245661	8·2320363	8·2393802	8·2466020	8·2537058	8·2606953	8·2675742	21
40	8·2170931	8·2246917	8·2321597	8·2395015	8·2467213	8·2538232	8·2608108	8·2676879	20
41	8·2172209	8·2248172	8·2322831	8·2396228	8·2468407	8·2539406	8·2609263	8·2678016	19
42	8·2173486	8·2249427	8·2324064	8·2397441	8·2469599	8·2540579	8·2610418	8·2679153	18
43	8·2174762	8·2250682	8·2325297	8·2398654	8·2470792	8·2541752	8·2611573	8·2680289	17
44	8·2176038	8·2251936	8·2326530	8·2399866	8·2471984	8·2542925	8·2612727	8·2681425	16
45	8·2177314	8·2253190	8·2327763	8·2401078	8·2473176	8·2544098	8·2613881	8·2682561	15
46	8·2178590	8·2254443	8·2328995	8·2402289	8·2474368	8·2545270	8·2615034	8·2683696	14
47	8·2179865	8·2255696	8·2330227	8·2403500	8·2475559	8·2546442	8·2616188	8·2684832	13
48	8·2181140	8·2256949	8·2331458	8·2404711	8·2476750	8·2547614	8·2617341	8·2685967	12
49	8·2182414	8·2258201	8·2332689	8·2405922	8·2477940	8·2548785	8·2618493	8·2687101	11
50	8·2183688	8·2259453	8·2333920	8·2407132	8·2479131	8·2549956	8·2619646	8·2688236	10
51	8·2184962	8·2260705	8·2335150	8·2408342	8·2480321	8·2551127	8·2620798	8·2689370	9
52	8·2186235	8·2261956	8·2336380	8·2409551	8·2481510	8·2552297	8·2621950	8·2690503	8
53	8·2187508	8·2263207	8·2337610	8·2410760	8·2482699	8·2553467	8·2623101	8·2691637	7
54	8·2188780	8·2264457	8·2338839	8·2411969	8·2483888	8·2554637	8·2624252	8·2692770	6
55	8·2190053	8·2265708	8·2340068	8·2413177	8·2485077	8·2555807	8·2625403	8·2693903	5
56	8·2191324	8·2266957	8·2341297	8·2414386	8·2486265	8·2556976	8·2626554	8·2695035	4
57	8·2192596	8·2268207	8·2342525	8·2415593	8·2487453	8·2558144	8·2627704	8·2696168	3
58	8·2193867	8·2269456	8·2343753	8·2416801	8·2488641	8·2559313	8·2628854	8·2697300	2
59	8·2195137	8·2270705	8·2344980	8·2418008	8·2489828	8·2560482	8·2630004	8·2698431	1
60	8·2196408	8·2271953	8·2346208	8·2419215	8·2491015	8·2561649	8·2631153	8·269956	0
"	3′	2′	1′	0′	59′	58′	57′	56′	"

″	4′	5′	6′	7′	8′	9′	10′	11′	″
0	8·2698810	8·2766136	8·2832434	8·2897734	8·2962067	8·3025460	8·3087941	8·3149536	60
1	8·2699941	8·2767249	8·2833530	8·2898814	8·2963131	8·3026509	8·3088975	8·3150555	59
2	8·2701071	8·2768362	8·2834626	8·2899894	8·2964195	8·3027558	8·3090009	8·3151571	58
3	8·2702201	8·2769475	8·2835722	8·2900974	8·2965259	8·3028606	8·3091042	8·3152590	57
4	8·2703331	8·2770587	8·2836818	8·2902053	8·2966322	8·3029654	8·3092075	8·3153611	56
5	8·2704461	8·2771700	8·2837913	8·2903132	8·2967385	8·3030702	8·3093108	8·3154630	55
6	8·2705590	8·2772811	8·2839008	8·2904211	8·2968448	8·3031749	8·3094140	8·3155648	54
7	8·2706719	8·2773923	8·2840103	8·2905289	8·2969511	8·3032796	8·3095173	8·3156665	53
8	8·2707847	8·2775034	8·2841197	8·2906367	8·2970573	8·3033843	8·3096205	8·3157683	52
9	8·2708976	8·2776145	8·2842292	8·2907445	8·2971635	8·3034890	8·3097237	8·3158700	51
10	8·2710104	8·2777256	8·2843386	8·2908523	8·2972697	8·3035937	8·3098269	8·3159717	50
11	8·2711232	8·2778367	8·2844479	8·2909600	8·2973759	8·3036983	8·3099299	8·3160734	49
12	8·2712359	8·2779477	8·2845573	8·2910677	8·2974820	8·3038029	8·3100330	8·3161751	48
13	8·2713486	8·2780587	8·2846666	8·2911754	8·2975881	8·3039075	8·3101361	8·3162767	47
14	8·2714613	8·2781696	8·2847759	8·2912831	8·2976942	8·3040120	8·3102392	8·3163783	46
15	8·2715740	8·2782806	8·2848851	8·2913907	8·2978002	8·3041165	8·3103422	8·3164799	45
16	8·2716866	8·2783915	8·2849943	8·2914983	8·2979063	8·3042210	8·3104452	8·3165815	44
17	8·2717992	8·2785023	8·2851035	8·2916059	8·2980123	8·3043255	8·3105482	8·3166830	43
18	8·2719118	8·2786132	8·2852127	8·2917134	8·2981183	8·3044299	8·3106512	8·3167845	42
19	8·2720243	8·2787240	8·2853219	8·2918210	8·2982242	8·3045344	8·3107541	8·3168860	41
20	8·2721368	8·2788348	8·2854310	8·2919285	8·2983301	8·3046388	8·3108570	8·3169875	40
21	8·2722493	8·2789456	8·2855401	8·2920359	8·2984360	8·3047431	8·3109599	8·3170889	39
22	8·2723618	8·2790563	8·2856491	8·2921434	8·2985419	8·3048475	8·3110628	8·3171903	38
23	8·2724742	8·2791670	8·2857582	8·2922508	8·2986477	8·3049518	8·3111656	8·3172917	37
24	8·2725866	8·2792777	8·2858672	8·2923582	8·2987536	8·3050561	8·3112684	8·3173931	36
25	8·2726990	8·2793883	8·2859762	8·2924656	8·2988594	8·3051604	8·3113712	8·3174945	35
26	8·2728113	8·2794989	8·2860851	8·2925729	8·2989651	8·3052646	8·3114740	[illegible]	34
27	8·2729236	8·2796095	8·2861941	8·2926802	8·2990709	8·3053688	8·3115767	8·3176971	33
28	8·2730359	8·2797201	8·2863030	8·2927875	8·2991766	8·3054730	8·3116794	8·3177984	32
29	8·2731481	8·2798306	8·2864118	8·2928948	8·2992823	8·3055772	8·3117821	8·3178996	31
30	8·2732604	8·2799411	8·2865207	8·2930020	8·2993879	8·3056813	8·3118848	8·3180008	30
31	8·2733725	8·2800516	8·2866295	8·2931092	8·2994936	8·3057855	8·3119874	8·3181020	29
32	8·2734847	8·2801620	8·2867383	8·2932164	8·2995992	8·3058896	8·3120901	8·3182032	28
33	8·2735968	8·2802725	8·2868471	8·2933235	8·2997048	8·3059936	8·3121927	8·3183044	27
34	8·2737089	8·2803829	8·2869558	8·2934306	8·2998104	8·3060977	8·3122952	8·3184055	26
35	8·2738210	8·2804933	8·2870645	8·2935378	8·2999159	8·3062017	8·3123978	8·3185067	25
36	8·2739331	8·2806036	8·2871732	8·2936448	8·3000214	8·3063057	8·3125003	8·3186077	24
37	8·2740451	8·2807139	8·2872818	8·2937519	8·3001269	8·3064097	8·3126028	8·3187088	23
38	8·2741571	8·2808242	8·2873905	8·2938589	8·3002324	8·3065136	8·3127053	8·3188098	22
39	8·2742690	8·2809345	8·2874991	8·2939659	8·3003378	8·3066175	8·3128077	8·3189109	21
40	8·2743810	8·2810447	8·2876076	8·2940729	8·3004432	8·3067214	8·3129101	8·3190119	20
41	8·2744929	8·2811549	8·2877162	8·2941798	8·3005486	8·3068253	8·3130125	8·3191128	19
42	8·2746048	8·2812650	8·2878247	8·2942867	8·3006539	8·3069291	8·3131149	8·3192138	18
43	8·2747166	8·2813752	8·2879332	8·2943936	8·3007593	8·3070330	8·3132173	8·3193147	17
44	8·2748284	8·2814853	8·2880417	8·2945005	8·3008646	8·3071368	8·3133196	8·3194156	16
45	8·2749402	8·2815954	8·2881501	8·2946073	8·3009699	8·3072405	8·3134219	8·3195165	15
46	8·2750520	8·2817055	8·2882585	8·2947141	8·3010751	8·3073443	8·3135242	8·3196173	14
47	8·2751637	8·2818155	8·2883669	8·2948209	8·3011804	8·3074480	8·3136264	8·3197182	13
48	8·2752754	8·2819255	8·2884752	8·2949277	8·3012856	8·3075517	8·3137287	8·3198190	12
49	8·2753871	8·2820355	8·2885836	8·2950344	8·3013907	8·3076554	8·3138309	8·3199198	11
50	8·2754987	8·2821454	8·2886919	8·2951411	8·3014959	8·3077590	8·3139331	8·3200205	10
51	8·2756103	8·2822553	8·2888002	8·2952478	8·3016010	8·3078626	8·3140352	8·3201213	9
52	8·2757219	8·2823652	8·2889084	8·2953544	8·3017061	8·3079662	8·3141374	8·3202220	8
53	8·2758335	8·2824751	8·2890166	8·2954611	8·3018112	8·3080698	8·3142395	8·3203227	7
54	8·2759450	8·2825849	8·2891248	8·2955677	8·3019163	8·3081733	8·3143416	8·3204233	6
55	8·2760565	8·2826947	8·2892330	8·2956742	8·3020213	8·3082769	8·3144436	8·3205240	5
56	8·2761680	8·2828045	8·2893411	8·2957808	8·3021263	8·3083804	[illegible]	[illegible]	4
57	8·2762795	8·2829143	8·2894492	8·2958871	8·3022313	8·3084839	[illegible]	[illegible]	3
58	8·2763909	8·2830240	8·2895573	8·2959938	8·3023362	8·3085873	8·31474[illegible]	[illegible]	2
59	[illegible]	8·2831337	8·2896654	8·2961003	8·3024411	8·3086907	[illegible]	[illegible]	1
60	8·2766136	8·2832434	8·2897734	8·2962067	8·3025460	8·3087941	8·31495[illegible]	[illegible]	0
″	55′	54′	53′	52′	51′	50′	49′	48′	″

″	4′	5′	6′	7′	8′	9′	10′	11′	″
0	8·2699563	8·2766912	8·2833234	8·2898559	8·2962917	8·3026335	8·3088842	8·3150462	60
1	8·2700694	8·2768026	8·2834331	8·2899640	8·2963981	8·3027385	8·3089876	8·3151482	59
2	8·2701825	8·2769139	8·2835428	8·2900720	8·2965046	8·3028433	8·3090910	8·3152501	58
3	8·2702955	8·2770253	8·2836524	8·2901800	8·2966110	8·3029482	8·3091944	8·3153520	57
4	8·2704085	8·2771365	8·2837620	8·2902879	8·2967174	8·3030531	8·3092977	8·3154539	56
5	8·2705215	8·2772478	8·2838716	8·2903959	8·2968237	8·3031579	8·3094010	8·3155558	55
6	8·2706345	8·2773590	8·2839811	8·2905038	8·2969300	8·3032627	8·3095043	8·3156576	54
7	8·2707474	8·2774702	8·2840906	8·2906117	8·2970363	8·3033674	8·3096076	8·3157595	53
8	8·2708603	8·2775814	8·2842001	8·2907195	8·2971426	8·3034722	8·3097109	8·3158613	52
9	8·2709732	8·2776925	8·2843096	8·2908274	8·2972489	8·3035769	8·3098141	8·3159630	51
10	8·2710860	8·2778036	8·2844190	8·2909352	8·2973551	8·3036816	8·3099173	8·3160648	50
11	8·2711989	8·2779147	8·2845284	8·2910430	8·2974613	8·3037862	8·3100205	8·3161665	49
12	8·2713116	8·2780258	8·2846378	8·2911507	8·2975675	8·3038909	8·3101236	8·3162682	48
13	8·2714244	8·2781368	8·2847471	8·2912584	8·2976736	8·3039955	8·3102267	8·3163699	47
14	8·2715371	8·2782478	8·2848565	8·2913661	8·2977797	8·3041001	8·3103298	8·3164715	46
15	8·2716498	8·2783588	8·2849658	8·2914738	8·2978858	8·3042046	8·3104329	8·3165732	45
16	8·2717625	8·2784697	8·2850750	8·2915815	8·2979919	8·3043092	8·3105360	8·3166748	44
17	8·2718751	8·2785806	8·2851843	8·2916891	8·2980980	8·3044137	8·3106390	8·3167764	43
18	8·2719877	8·2786915	8·2852935	8·2917967	8·2982040	8·3045182	8·3107420	8·3168779	42
19	8·2721003	8·2788024	8·2854027	8·2919042	8·2983100	8·3046226	8·3108450	8·3169795	41
20	8·2722129	8·2789132	8·2855118	8·2920118	8·2984159	8·3047271	8·3109479	8·3170810	40
21	8·2723254	8·2790240	8·2856210	8·2921193	8·2985219	8·3048315	8·3110508	8·3171825	39
22	8·2724379	8·2791348	8·2857301	8·2922268	8·2986278	8·3049359	8·3111538	8·3172839	38
23	8·2725504	8·2792455	8·2858392	8·2923342	8·2987337	8·3050403	8·3112566	8·3173854	37
24	8·2726628	8·2793563	8·2859482	8·2924417	8·2988395	8·3051446	8·3113595	8·3174868	36
25	8·2727752	8·2794670	8·2860572	8·2925491	8·2989454	8·3052489	8·3114623	8·3175882	35
26	8·2728876	8·2795776	8·2861662	8·2926565	8·2990512	8·3053532	8·3115651	8·3176895	34
27	8·2729999	8·2796882	8·2862752	8·2927638	8·2991570	8·3054575	8·3116679	8·3177909	33
28	8·2731122	8·2797988	8·2863841	8·2928711	8·2992627	8·3055617	8·3117707	8·3178922	32
29	8·2732245	8·2799094	8·2864931	8·2929784	8·2993685	8·3056659	8·3118734	8·3179935	31
30	8·2733368	8·2800200	8·2866019	8·2930857	8·2994742	8·3057701	8·3119761	8·3180948	30
31	8·2734490	8·2801305	8·2867108	8·2931930	8·2995799	8·3058743	8·3120788	8·3181960	29
32	8·2735612	8·2802410	8·2868196	8·2933002	8·2996855	8·3059784	8·3121815	8·3182973	28
33	8·2736734	8·2803515	8·2869284	8·2934074	8·2997911	8·3060825	8·3122841	8·3183985	27
34	8·2737856	8·2804619	8·2870372	8·2935145	8·2998967	8·3061866	8·3123867	8·3184997	26
35	8·2738977	8·2805723	8·2871460	8·2936217	8·3000023	8·3062907	8·3124893	8·3186008	25
36	8·2740098	8·2806827	8·2872547	8·2937288	8·3001079	8·3063947	8·3125919	8·3187019	24
37	8·2741218	8·2807930	8·2873634	8·2938359	8·3002134	8·3064987	8·3126944	8·3188031	23
38	8·2742338	8·2809034	8·2874720	8·2939429	8·3003189	8·3066027	8·3127969	8·3189041	22
39	8·2743458	8·2810136	8·2875807	8·2940500	8·3004244	8·3067067	8·3128994	8·3190052	21
40	8·2744578	8·2811239	8·2876893	8·2941570	8·3005298	8·3068106	8·3130019	8·3191062	20
41	8·2745698	8·2812342	8·2877979	8·2942640	8·3006353	8·3069145	8·3131043	8·3192073	19
42	8·2746817	8·2813444	8·2879065	8·2943709	8·3007407	8·3070184	8·3132068	8·3193083	18
43	8·2747936	8·2814545	8·2880150	8·2944779	8·3008460	8·3071223	8·3133092	8·3194092	17
44	8·2749054	8·2815647	8·2881235	8·2945848	8·3009514	8·3072261	8·3134115	8·3195102	16
45	8·2750173	8·2816748	8·2882320	8·2946916	8·3010567	8·3073299	8·3135139	8·3196111	15
46	8·2751291	8·2817849	8·2883404	8·2947985	8·3011620	8·3074337	8·3136162	8·3197120	14
47	8·2752408	8·2818950	8·2884488	8·2949053	8·3012673	8·3075375	8·3137185	8·3198129	13
48	8·2753526	8·2820051	8·2885572	8·2950121	8·3013725	8·3076412	8·3138208	8·3199137	12
49	8·2754643	8·2821151	8·2886656	8·2951189	8·3014778	8·3077449	8·3139230	8·3200145	11
50	8·2755760	8·2822251	8·2887740	8·2952256	8·3015830	8·3078486	8·3140253	8·3201154	10
51	8·2756876	8·2823350	8·2888823	8·2953324	8·3016881	8·3079523	8·3141275	8·3202161	9
52	8·2757992	8·2824450	8·2889906	8·2954391	8·3017933	8·3080559	8·3142296	8·3203169	8
53	8·2759108	8·2825549	8·2890988	8·2955457	8·3018984	8·3081596	8·3143318	8·3204176	7
54	8·2760224	8·2826647	8·2892071	8·2956524	8·3020035	8·3082631	8·3144339	8·3205183	6
55	8·2761340	8·2827746	8·2893153	8·2957590	8·3021086	8·3083667	8·3145360	8·3206190	5
56	8·2762455	8·2828844	8·2894235	8·2958656	8·3022136	8·3084703	8·3146381	8·3207197	4
57	8·2763570	8·2829942	8·2895316	8·2959721	8·3023186	8·3085738	8·3147402	8·3208203	3
58	8·2764684	8·2831040	8·2896397	8·2960787	8·3024236	8·3086773	8·3148422	8·3209210	2
59	8·2765798	8·2832137	8·2897478	8·2961852	8·3025286	8·3087807	8·3149442	8·3210215	1
60	8·2766912	8·2833234	8·2898559	8·2962917	8·3026335	8·3088842	8·3150462	8·3211221	0
″	55′	54′	53′	52′	51′	50′	49′	48′	″

″	12′	13′	14′	15′	16′	17′	18′	19′	″
0	8·3210259	8·3270162	8·3329243	8·3387529	8·3445043	8·3501805	8·3557835	8·3613150	60
1	8·3211274	8·3271153	8·3330221	8·3388494	8·3445995	8·3502745	8·3558762	8·3614066	59
2	8·3212278	8·3272146	8·3331199	8·3389459	8·3446947	8·3503685	8·3559690	8·3614982	58
3	8·3213282	8·3273137	8·3332176	8·3390423	8·3447899	8·3504624	8·3560617	8·3615897	57
4	8·3214287	8·3274127	8·3333153	8·3391387	8·3448851	8·3505563	8·3561544	8·3616813	56
5	8·3215291	8·3275116	8·3334130	8·3392351	8·3449802	8·3506502	8·3562471	8·3617728	55
6	8·3216295	8·3276105	8·3335107	8·3393315	8·3450753	8·3507441	8·3563398	8·3618643	54
7	8·3217299	8·3277097	8·3336084	8·3394279	8·3451704	8·3508379	8·3564324	8·3619558	53
8	8·3218303	8·3278087	8·3337060	8·3395242	8·3452655	8·3509318	8·3565251	8·3620473	52
9	8·3219306	8·3279077	8·3338036	8·3396205	8·3453605	8·3510256	8·3566177	8·3621387	51
10	8·3220309	8·3280066	8·3339012	8·3397168	8·3454555	8·3511194	8·3567103	8·3622301	50
11	8·3221311	8·3281055	8·3339988	8·3398131	8·3455505	8·3512132	8·3568029	8·3623215	49
12	8·3222314	8·3282044	8·3340963	8·3399094	8·3456455	8·3513069	8·3568954	8·3624129	48
13	8·3223316	8·3283032	8·3341938	8·3400055	8·3457405	8·3514006	8·3569880	8·3625042	47
14	8·3224318	8·3284021	8·3342913	8·3401018	8·3458354	8·3514944	8·3570805	8·3625956	46
15	8·3225320	8·3285009	8·3343888	8·3401979	8·3459304	8·3515881	8·3571730	8·3626869	45
16	8·3226322	8·3285997	8·3344863	8·3402941	8·3460253	8·3516817	8·3572654	8·3627782	44
17	8·3227324	8·3286984	8·3345837	8·3403902	8·3461201	8·3517754	8·3573579	8·3628695	43
18	8·3228325	8·3287972	8·3346811	8·3404864	8·3462150	8·3518690	8·3574503	8·3629608	42
19	8·3229325	8·3288959	8·3347785	8·3405825	8·3463098	8·3519626	8·3575427	8·3630520	41
20	8·3230326	8·3289946	8·3348759	8·3406785	8·3464047	8·3520562	8·3576351	8·3631433	40
21	8·3231326	8·3290933	8·3349732	8·3407746	8·3464995	8·3521498	8·3577275	8·3632345	39
22	8·3232326	8·3291919	8·3350706	8·3408706	8·3465942	8·3522434	8·3578199	8·3633257	38
23	8·3233326	8·3292906	8·3351679	8·3409666	8·3466890	8·3523369	8·3579122	8·3634169	37
24	8·3234326	8·3293892	8·3352651	8·3410626	8·3467837	8·3524304	8·3580045	8·3635080	36
25	8·3235325	8·3294878	8·3353624	8·3411586	8·3468784	8·3525239	8·3580968	8·3635991	35
26	8·3236324	8·3295863	8·3354597	8·3412546	8·3469731	8·3526173	8·3581891	8·3636903	34
27	8·3237324	8·3296849	8·3355569	8·3413505	8·3470678	8·3527108	8·3582814	8·3637814	33
28	8·3238322	8·3297834	8·3356541	8·3414464	8·3471625	8·3528042	8·3583736	8·3638724	32
29	8·3239321	8·3298819	8·3357512	8·3415423	8·3472571	8·3528976	8·3584658	8·3639635	31
30	8·3240319	8·3299804	8·3358484	8·3416382	8·3473517	8·3529910	8·3585580	8·3640545	30
31	8·3241317	8·3300788	8·3359455	8·3417340	8·3474463	8·3530844	8·3586502	8·3641456	29
32	8·3242315	8·3301773	8·3360426	8·3418298	8·3475409	8·3531778	8·3587424	8·3642366	28
33	8·3243313	8·3302757	8·3361397	8·3419256	8·3476354	8·3532711	8·3588345	8·3643275	27
34	8·3244310	8·3303740	8·3362368	8·3420214	8·3477300	8·3533644	8·3589266	8·3644185	26
35	8·3245308	8·3304724	8·3363338	8·3421172	8·3478245	8·3534577	8·3590187	8·3645095	25
36	8·3246305	8·3305708	8·3364309	8·3422129	8·3479189	8·3535510	8·3591108	8·3646004	24
37	8·3247301	8·3306691	8·3365279	8·3423086	8·3480134	8·3536442	8·3592029	8·3646913	23
38	8·3248298	8·3307674	8·3366248	8·3424043	8·3481079	8·3537374	8·3592949	8·3647822	22
39	8·3249294	8·3308656	8·3367218	8·3425000	8·3482023	8·3538306	8·3593870	8·3648730	21
40	8·3250290	8·3309639	8·3368187	8·3425957	8·3482967	8·3539238	8·3594790	8·3649639	20
41	8·3251286	8·3310621	8·3369156	8·3426913	8·3483911	8·3540170	8·3595709	8·3650547	19
42	8·3252282	8·3311603	8·3370125	8·3427869	8·3484854	8·3541102	8·3596629	8·3651455	18
43	8·3253277	8·3312585	8·3371094	8·3428825	8·3485798	8·3542033	8·3597549	8·3652363	17
44	8·3254272	8·3313567	8·3372063	8·3429781	8·3486741	8·3542964	8·3598468	8·3653271	16
45	8·3255267	8·3314548	8·3373031	8·3430736	8·3487684	8·3543895	8·3599387	8·3654179	15
46	8·3256262	8·3315529	8·3373999	8·3431691	8·3488627	8·3544826	8·3600305	8·3655086	14
47	8·3257256	8·3316510	8·3374967	8·3432646	8·3489570	8·3545756	8·3601225	8·3655993	13
48	8·3258250	8·3317491	8·3375934	8·3433601	8·3490512	8·3546686	8·3602143	8·3656900	12
49	8·3259244	8·3318472	8·3376902	8·3434556	8·3491454	8·3547617	8·3603061	8·3657807	11
50	8·3260237	8·3319452	8·3377869	8·3435510	8·3492396	8·3548546	8·3603979	8·3658714	10
51	8·3261231	8·3320432	8·3378836	8·3436465	8·3493338	8·3549476	8·3604897	8·3659620	9
52	8·3262224	8·3321412	8·3379803	8·3437419	8·3494280	8·3550406	8·3605815	8·3660526	8
53	8·3263216	8·3322392	8·3380769	8·3438372	8·3495221	8·3551335	8·3606733	8·3661432	7
54	8·3264211	8·3323371	8·3381736	8·3439326	8·3496162	8·3552264	8·3607650	8·3662338	6
55	8·3265204	8·3324350	8·3382702	8·3440279	8·3497103	8·3553193	8·3608567	8·3663244	5
56	8·3266196	8·3325329	8·3383668	8·3441233	8·3498044	8·3554122	8·3609484	8·3664149	4
57	8·3267188	8·3326308	8·3384634	8·3442186	8·3498985	8·3555050	8·3610401	8·3665054	3
58	8·3268180	8·3327287	8·3385599	8·3443138	8·3499925	8·3555979	8·3611317	8·3665959	2
59	8·3269171	8·3328265	8·3386564	8·3444091	8·3500865	8·3556907	8·3612234	8·3666864	1
60	8·3270162	8·3329243	8·3387529	8·3445043	8·3501805	8·3557835	8·3613150	8·3667769	0
″	47′	46′	45′	44′	43′	42′	41′	40′	″

″	12′	13′	14′	15′	16′	17′	18′	19′	″
0	8·3211221	8·3271143	8·3330249	8·3388563	8·3446105	8·3502895	8·3558953	8·3614297	60
1	8·3212227	8·3272134	8·3331228	8·3389528	8·3447057	8·3503835	8·3559881	8·3615213	59
2	8·3213232	8·3273126	8·3332206	8·3390493	8·3448010	8·3504775	8·3560809	8·3616129	58
3	8·3214237	8·3274117	8·3333184	8·3391458	8·3448962	8·3505715	8·3561737	8·3617045	57
4	8·3215242	8·3275108	8·3334161	8·3392423	8·3449914	8·3506655	8·3562664	8·3617961	56
5	8·3216246	8·3276099	8·3335139	8·3393387	8·3450866	8·3507594	8·3563592	8·3618877	55
6	8·3217251	8·3277090	8·3336116	8·3394351	8·3451817	8·3508533	8·3564519	8·3619793	54
7	8·3218255	8·3278080	8·3337093	8·3395316	8·3452769	8·3509472	8·3565446	8·3620708	53
8	8·3219259	8·3279070	8·3338070	8·3396279	8·3453720	8·3510411	8·3566373	8·3621623	52
9	8·3220262	8·3280060	8·3339046	8·3397243	8·3454671	8·3511350	8·3567299	8·3622538	51
10	8·3221266	8·3281050	8·3340023	8·3398206	8·3455621	8·3512288	8·3568226	8·3623453	50
11	8·3222269	8·3282039	8·3340999	8·3399169	8·3456572	8·3513226	8·3569152	8·3624367	49
12	8·3223272	8·3283028	8·3341975	8·3400132	8·3457522	8·3514164	8·3570078	8·3625281	48
13	8·3224274	8·3284017	8·3342950	8·3401095	8·3458472	8·3515102	8·3571004	8·3626196	47
14	8·3225277	8·3285006	8·3343926	8·3402058	8·3459422	8·3516040	8·3571929	8·3627110	46
15	8·3226279	8·3285995	8·3344901	8·3403020	8·3460372	8·3516977	8·3572855	8·3628023	45
16	8·3227281	8·3286983	8·3345876	8·3403982	8·3461321	8·3517914	8·3573780	8·3628937	44
17	8·3228283	8·3287971	8·3346851	8·3404944	8·3462271	8·3518851	8·3574705	8·3629850	43
18	8·3229285	8·3288959	8·3347826	8·3405906	8·3463220	8·3519788	8·3575630	8·3630763	42
19	8·3230286	8·3289947	8·3348800	8·3406867	8·3464169	8·3520725	8·3576555	8·3631676	41
20	8·3231287	8·3290934	8·3349774	8·3407828	8·3465117	8·3521661	8·3577479	8·3632589	40
21	8·3232288	8·3291921	8·3350748	8·3408789	8·3466066	8·3522597	8·3578403	8·3633502	39
22	8·3233288	8·3292908	8·3351722	8·3409750	8·3467014	8·3523533	8·3579327	8·3634414	38
23	8·3234289	8·3293895	8·3352695	8·3410711	8·3467962	8·3524469	8·3580251	8·3635327	37
24	8·3235289	8·3294882	8·3353669	8·3411671	8·3468910	8·3525405	8·3581175	8·3636239	36
25	8·3236289	8·3295868	8·3354642	8·3412631	8·3469857	8·3526340	8·3582098	8·3637150	35
26	8·3237289	8·3296854	8·3355615	8·3413591	8·3470805	8·3527275	8·3583022	8·3638062	34
27	8·3238288	8·3297840	8·3356587	8·3414551	8·3471752	8·3528210	8·3583945	8·3638974	33
28	8·3239287	8·3298826	8·3357560	8·3415511	8·3472699	8·3529145	8·3584868	8·3639885	32
29	8·3240286	8·3299811	8·3358532	8·3416470	8·3473646	8·3530080	8·3585790	8·3640796	31
30	8·3241285	8·3300796	8·3359504	8·3417429	8·3474592	8·3531014	8·3586713	8·3641707	30
31	8·3242284	8·3301781	8·3360476	8·3418388	8·3475539	8·3531948	8·3587635	8·3642617	29
32	8·3243282	8·3302766	8·3361447	8·3419347	8·3476485	8·3532882	8·3588557	8·3643528	28
33	8·3244280	8·3303751	8·3362419	8·3420305	8·3477431	8·3533816	8·3589479	8·3644438	27
34	8·3245278	8·3304735	8·3363390	8·3421263	8·3478377	8·3534750	8·3590401	8·3645348	26
35	8·3246276	8·3305719	8·3364361	8·3422221	8·3479322	8·3535683	8·3591322	8·3646258	25
36	8·3247273	8·3306703	8·3365331	8·3423179	8·3480268	8·3536616	8·3592243	8·3647168	24
37	8·3248270	8·3307687	8·3366302	8·3424137	8·3481213	8·3537549	8·3593165	8·3648078	23
38	8·3249267	8·3308670	8·3367272	8·3425094	8·3482158	8·3538482	8·3594086	8·3648987	22
39	8·3250264	8·3309653	8·3368242	8·3426052	8·3483103	8·3539414	8·3595006	8·3649896	21
40	8·3251260	8·3310636	8·3369212	8·3427009	8·3484047	8·3540347	8·3595927	8·3650805	20
41	8·3252257	8·3311619	8·3370181	8·3427965	8·3484991	8·3541279	8·3596847	8·3651714	19
42	8·3253253	8·3312601	8·3371151	8·3428922	8·3485936	8·3542211	8·3597767	8·3652623	18
43	8·3254249	8·3313584	8·3372120	8·3429878	8·3486879	8·3543143	8·3598687	8·3653531	17
44	8·3255244	8·3314566	8·3373089	8·3430835	8·3487823	8·3544074	8·3599607	8·3654439	16
45	8·3256240	8·3315548	8·3374058	8·3431791	8·3488767	8·3545006	8·3600527	8·3655347	15
46	8·3257235	8·3316529	8·3375026	8·3432746	8·3489710	8·3545937	8·3601446	8·3656255	14
47	8·3258230	8·3317511	8·3375994	8·3433702	8·3490653	8·3546868	8·3602365	8·3657163	13
48	8·3259224	8·3318492	8·3376963	8·3434657	8·3491596	8·3547799	8·3603284	8·3658070	12
49	8·3260219	8·3319473	8·3377930	8·3435612	8·3492539	8·3548729	8·3604203	8·3658977	11
50	8·3261213	8·3320454	8·3378898	8·3436567	8·3493481	8·3549660	8·3605121	8·3659885	10
51	8·3262207	8·3321434	8·3379866	8·3437522	8·3494423	8·3550590	8·3606040	8·3660791	9
52	8·3263201	8·3322415	8·3380833	8·3438476	8·3495365	8·3551520	8·3606958	8·3661698	8
53	8·3264194	8·3323395	8·3381800	8·3439431	8·3496307	8·3552450	8·3607876	8·3662606	7
54	8·3265188	8·3324375	8·3382767	8·3440385	8·3497249	8·3553379	8·3608794	8·3663511	6
55	8·3266181	8·3325354	8·3383733	8·3441339	8·3498191	8·3554309	8·3609711	8·3664417	5
56	8·3267173	8·3326334	8·3384700	8·3442292	8·3499132	8·3555238	8·3610629	8·3665323	4
57	8·3268166	8·3327313	8·3385666	8·3443246	8·3500073	8·3556167	8·3611546	8·3666229	3
58	8·3269158	8·3328292	8·3386632	8·3444199	8·3501014	8·3557096	8·3612463	8·3667135	2
59	8·3270151	8·3329271	8·3387597	8·3445152	8·3501954	8·3558024	8·3613380	8·3668040	1
60	8·3271143	8·3330249	8·3388563	8·3446105	8·3502895	8·3558953	8·3614297	8·3668945	0
″	47′	46′	45′	44′	43′	42′	41′	40′	″

″	20′	21′	22′	23′	24′	25′	26′	27′
0	8·3667769	8·3721710	8·3774988	8·3827620	8·3879622	8·3931008	8·3981793	[illegible]
1	8·3668674	8·3722603	8·3775870	8·3828492	8·3880485	8·3931859	8·3982634	[illegible]
2	8·3669578	8·3723496	8·3776753	8·3829364	8·3881345	8·3932710	8·3983475	[illegible]
3	8·3670482	8·3724389	8·3777635	8·3830235	8·3882206	8·3933561	8·3984316	[illegible]
4	8·3671386	8·3725282	8·3778517	8·3831106	8·3883067	8·3934412	8·3985157	[illegible]
5	8·3672290	8·3726174	8·3779398	8·3831978	8·3883927	8·3935263	8·3985998	[illegible]
6	8·3673193	8·3727067	8·3780280	8·3832848	8·3884788	8·3936113	8·3986839	[illegible]
7	8·3674097	8·3727959	8·3781161	8·3833719	8·3885648	8·3936964	8·3987679	[illegible]
8	8·3675001	8·3728851	8·3782042	8·3834590	8·3886509	8·3937814	8·3988519	[illegible]
9	8·3675903	8·3729743	8·3782924	8·3835460	8·3887369	8·3938664	8·3989359	[illegible]
10	8·3676806	8·3730635	8·3783804	8·3836330	8·3888229	8·3939513	8·3990199	[illegible]
11	8·3677708	8·3731526	8·3784685	8·3837201	8·3889088	8·3940363	8·3991039	[illegible]
12	8·3678611	8·3732418	8·3785566	8·3838070	8·3889948	8·3941213	8·3991879	[illegible]
13	8·3679513	8·3733309	8·3786446	8·3838940	8·3890807	8·3942062	8·3992718	[illegible]
14	8·3680415	8·3734200	8·3787326	8·3839810	8·3891666	8·3942911	8·3993557	[illegible]
15	8·3681317	8·3735091	8·3788206	8·3840679	8·3892526	8·3943760	8·3994397	[illegible]
16	8·3682219	8·3735981	8·3789086	8·3841548	8·3893384	8·3944609	8·3995236	[illegible]
17	8·3683120	8·3736872	8·3789965	8·3842417	8·3894243	8·3945457	8·3996074	[illegible]
18	8·3684022	8·3737762	8·3790845	8·3843286	8·3895102	8·3946306	8·3996913	[illegible]
19	8·3684923	8·3738652	8·3791724	8·3844155	8·3895960	8·3947154	8·3997751	[illegible]
20	8·3685824	8·3739542	8·3792603	8·3845023	8·3896818	8·3948002	8·3998590	[illegible]
21	8·3686725	8·3740431	8·3793482	8·3845892	8·3897676	8·3948850	8·3999428	[illegible]
22	8·3687625	8·3741321	8·3794361	8·3846760	8·3898534	8·3949698	8·4000266	[illegible]
23	8·3688526	8·3742210	8·3795239	8·3847628	8·3899392	8·3950546	8·4001104	[illegible]
24	8·3689426	8·3743099	8·3796117	8·3848496	8·3900249	8·3951393	8·4001941	[illegible]
25	8·3690326	8·3743988	8·3796996	8·3849363	8·3901107	8·3952240	8·4002779	[illegible]
26	8·3691226	8·3744877	8·3797874	8·3850231	8·3901964	8·3953088	8·4003616	[illegible]
27	8·3692125	8·3745766	8·3798751	8·3851098	8·3902821	8·3953935	8·4004453	[illegible]
28	8·3693025	8·3746654	8·3799629	8·3851965	8·3903678	8·3954781	8·4005290	[illegible]
29	8·3693924	8·3747542	8·3800507	8·3852832	8·3904534	8·3955628	8·4006127	[illegible]
30	8·3694823	8·3748430	8·3801384	8·3853699	8·3905391	8·3956475	8·4006964	[illegible]
31	8·3695722	8·3749318	8·3802261	8·3854565	8·3906247	8·3957321	8·4007801	[illegible]
32	8·3696621	8·3750206	8·3803138	8·3855432	8·3907103	8·3958167	8·4008637	[illegible]
33	8·3697519	8·3751094	8·3804015	8·3856298	8·3907959	8·3959013	8·4009473	[illegible]
34	8·3698418	8·3751981	8·3804891	8·3857164	8·3908815	8·3959859	8·4010309	[illegible]
35	8·3699316	8·3752868	8·3805768	8·3858030	8·3909671	8·3960705	8·4011145	[illegible]
36	8·3700214	8·3753755	8·3806644	8·3858896	8·3910526	8·3961550	8·4011981	[illegible]
37	8·3701111	8·3754642	8·3807520	8·3859761	8·3911382	8·3962395	8·4012816	[illegible]
38	8·3702009	8·3755528	8·3808396	8·3860627	8·3912237	8·3963241	8·4013652	[illegible]
39	8·3702907	8·3756415	8·3809271	8·3861492	8·3913092	8·3964086	8·4014487	[illegible]
40	8·3703804	8·3757301	8·3810147	8·3862357	8·3913947	8·3964930	8·4015322	[illegible]
41	8·3704701	8·3758187	8·3811022	8·3863222	8·3914801	8·3965775	8·4016157	[illegible]
42	8·3705598	8·3759073	8·3811897	8·3864087	8·3915656	8·3966620	8·4016992	[illegible]
43	8·3706494	8·3759959	8·3812772	8·3864951	8·3916510	8·3967464	8·4017826	[illegible]
44	8·3707391	8·3760844	8·3813647	8·3865816	8·3917364	8·3968308	8·4018661	[illegible]
45	8·3708287	8·3761729	8·3814522	8·3866680	8·3918218	8·3969152	8·4019495	[illegible]
46	8·3709183	8·3762615	8·3815396	8·3867544	8·3919072	8·3969996	8·4020329	[illegible]
47	8·3710079	8·3763500	8·3816271	8·3868408	8·3919926	8·3970840	8·4021163	[illegible]
48	8·3710975	8·3764384	8·3817145	8·3869271	8·3920779	8·3971683	8·4021997	[illegible]
49	8·3711870	8·3765269	8·3818019	8·3870135	8·3921633	8·3972527	8·4022831	[illegible]
50	8·3712766	8·3766153	8·3818892	8·3870998	8·3922486	8·3973370	8·4023664	[illegible]
51	8·3713661	8·3767038	8·3819766	8·3871861	8·3923339	8·3974213	8·4024497	[illegible]
52	8·3714556	8·3767922	8·3820639	8·3872724	8·3924191	8·3975056	8·4025331	[illegible]
53	8·3715451	8·3768806	8·3821513	8·3873587	8·3925044	8·3975898	8·4026164	[illegible]
54	8·3716346	8·3769689	8·3822386	8·3874450	8·3925897	8·3976741	8·4026996	[illegible]
55	8·3717240	8·3770573	8·3823258	8·3875312	8·3926749	8·3977583	8·4027829	[illegible]
56	8·3718134	8·3771456	8·3824131	8·3876174	8·3927601	8·3978425	8·4028662	[illegible]
57	8·3719028	8·3772339	8·3825004	8·3877037	8·3928453	8·3979268	8·4029494	[illegible]
58	8·3719922	8·3773222	8·3825876	8·3877898	8·3929305	8·3980109	8·4030326	[illegible]
59	8·3720816	8·3774105	8·3826748	8·3878760	8·3930156	8·3980951	8·4031158	[illegible]
60	8·3721710	8·3774988	8·3827620	8·3879622	8·3931008	8·3981793	8·4031990	8·4081614
″	39′	38′	37′	36′	35′	34′	33′	32′

″	20′	21′	22′	23′	24′	25′	26′	27′	″
0	8·3668945	8·3722915	8·3776223	8·3828886	8·3880918	8·3932336	8·3983152	8·4033381	60
1	8·3669850	8·3723809	8·3777106	8·3829758	8·3881780	8·3933187	8·3983994	8·4034213	59
2	8·3670755	8·3724703	8·3777989	8·3830631	8·3882642	8·3934039	8·3984835	8·4035045	58
3	8·3671660	8·3725596	8·3778872	8·3831503	8·3883504	8·3934891	8·3985677	8·4035877	57
4	8·3672564	8·3726489	8·3779754	8·3832374	8·3884365	8·3935742	8·3986519	8·4036709	56
5	8·3673468	8·3727383	8·3780636	8·3833246	8·3885227	8·3936593	8·3987360	8·4037541	55
6	8·3674372	8·3728275	8·3781519	8·3834117	8·3886088	8·3937444	8·3988201	8·4038372	54
7	8·3675276	8·3729168	8·3782400	8·3834989	8·3886949	8·3938295	8·3989042	8·4039203	53
8	8·3676180	8·3730061	8·3783282	8·3835860	8·3887809	8·3939145	8·3989883	8·4040035	52
9	8·3677083	8·3730953	8·3784164	8·3836731	8·3888670	8·3939996	8·3990723	8·4040866	51
10	8·3677987	8·3731845	8·3785045	8·3837601	8·3889530	8·3940846	8·3991564	8·4041696	50
11	8·3678890	8·3732737	8·3785926	8·3838472	8·3890391	8·3941696	8·3992404	8·4042527	49
12	8·3679793	8·3733629	8·3786807	8·3839342	8·3891251	8·3942546	8·3993244	8·4043358	48
13	8·3680696	8·3734521	8·3787688	8·3840213	8·3892111	8·3943396	8·3994084	8·4044188	47
14	8·3681598	8·3735412	8·3788569	8·3841083	8·3892970	8·3944246	8·3994924	8·4045018	46
15	8·3682501	8·3736304	8·3789449	8·3841953	8·3893830	8·3945095	8·3995764	8·4045848	45
16	8·3683403	8·3737195	8·3790329	8·3842822	8·3894689	8·3945945	8·3996603	8·4046678	44
17	8·3684305	8·3738086	8·3791209	8·3843692	8·3895548	8·3946794	8·3997442	8·4047508	43
18	8·3685207	8·3738976	8·3792089	8·3844561	8·3896408	8·3947643	8·3998282	8·4048337	42
19	8·3686108	8·3739867	8·3792969	8·3845430	8·3897266	8·3948492	8·3999121	8·4049167	41
20	8·3687010	8·3740757	8·3793849	8·3846299	8·3898125	8·3949340	8·3999959	8·4049996	40
21	8·3687911	8·3741647	8·3794728	8·3847168	8·3898984	8·3950189	8·4000798	8·4050825	39
22	8·3688812	8·3742538	8·3795607	8·3848037	8·3899842	8·3951037	8·4001637	8·4051654	38
23	8·3689713	8·3743427	8·3796486	8·3848905	8·3900700	8·3951885	8·4002475	8·4052483	37
24	8·3690614	8·3744317	8·3797365	8·3849774	8·3901558	8·3952733	8·4003313	8·4053311	36
25	8·3691514	8·3745206	8·3798244	8·3850642	8·3902416	8·3953581	8·4004151	8·4054140	35
26	8·3692414	8·3746096	8·3799122	8·3851510	8·3903274	8·3954429	8·4004989	8·4054968	34
27	8·3693315	8·3746985	8·3800001	8·3852378	8·3904131	8·3955276	8·4005827	8·4055796	33
28	8·3694215	8·3747874	8·3800879	8·3853245	8·3904989	8·3956124	8·4006664	8·4056624	32
29	8·3695114	8·3748762	8·3801757	8·3854113	8·3905846	8·3956971	8·4007502	8·4057452	31
30	8·3696014	8·3749651	8·3802634	8·3854980	8·3906703	8·3957818	8·4008339	8·4058280	30
31	8·3696913	8·3750539	8·3803512	8·3855847	8·3907560	8·3958665	8·4009176	8·4059107	29
32	8·3697812	8·3751428	8·3804390	8·3856714	8·3908417	8·3959511	8·4010013	8·4059935	28
33	8·3698711	8·3752316	8·3805267	8·3857581	8·3909273	8·3960358	8·4010850	8·4060762	27
34	8·3699610	8·3753203	8·3806144	8·3858448	8·3910129	8·3961204	8·4011686	8·4061589	26
35	8·3700509	8·3754091	8·3807021	8·3859314	8·3910986	8·3962050	8·4012523	8·4062416	25
36	8·3701407	8·3754979	8·3807898	8·3860180	8·3911842	8·3962897	8·4013359	8·4063242	24
37	8·3702306	8·3755866	8·3808774	8·3861046	8·3912697	8·3963742	8·4014195	8·4064069	23
38	8·3703204	8·3756753	8·3809650	8·3861912	8·3913553	8·3964588	8·4015031	8·4064895	22
39	8·3704102	8·3757640	8·3810527	8·3862778	8·3914409	8·3965434	8·4015867	8·4065722	21
40	8·3704999	8·3758527	8·3811403	8·3863643	8·3915264	8·3966279	8·4016702	8·4066548	20
41	8·3705897	8·3759413	8·3812278	8·3864509	8·3916119	8·3967124	8·4017538	8·4067374	19
42	8·3706794	8·3760299	8·3813154	8·3865374	8·3916974	8·3967969	8·4018373	8·4068199	18
43	8·3707692	8·3761186	8·3814030	8·3866239	8·3917829	8·3968814	8·4019208	8·4069025	17
44	8·3708589	8·3762072	8·3814905	8·3867104	8·3918684	8·3969659	8·4020043	8·4069850	16
45	8·3709485	8·3762958	8·3815780	8·3867969	8·3919538	8·3970503	8·4020878	8·4070676	15
46	8·3710382	8·3763843	8·3816655	8·3868833	8·3920393	8·3971348	8·4021713	8·4071501	14
47	8·3711278	8·3764729	8·3817530	8·3869698	8·3921247	8·3972192	8·4022547	8·4072326	13
48	8·3712175	8·3765614	8·3818404	8·3870562	8·3922101	8·3973036	8·4023381	8·4073151	12
49	8·3713071	8·3766499	8·3819279	8·3871426	8·3922955	8·3973880	8·4024216	8·4073975	11
50	8·3713967	8·3767384	8·3820153	8·3872290	8·3923808	8·3974724	8·4025050	8·4074800	10
51	8·3714862	8·3768269	8·3821027	8·3873153	8·3924662	8·3975567	8·4025884	8·4075624	9
52	8·3715758	8·3769153	8·3821901	8·3874017	8·3925515	8·3976411	8·4026717	8·4076449	8
53	8·3716653	8·3770038	8·3822775	8·3874880	8·3926368	8·3977254	8·4027551	8·4077273	7
54	8·3717548	8·3770922	8·3823648	8·3875743	8·3927221	8·3978097	8·4028384	8·4078097	6
55	8·3718443	8·3771806	8·3924522	8·3876606	8·3928074	8·3978940	8·4029217	8·4078920	5
56	8·3719338	8·3772690	8·3825395	8·3877469	8·3928927	8·3979782	8·4030050	8·4079744	4
57	8·3720232	8·3773574	8·3826268	8·3878332	8·3929779	8·3980625	8·4030883	8·4080567	3
58	8·3721127	8·3774457	8·3827141	8·3879194	8·3930631	8·3981467	8·4031716	8·4081391	2
59	8·3722021	8·3775340	8·3828014	8·3880056	8·3931484	8·3982310	8·4032549	8·4082214	1
60	8·3722915	8·3776223	8·3828886	8·3880918	8·3932336	8·3983152	8·4033381	8·4083037	0
″	39′	38′	37′	36′	35′	34′	33′	32′	″

″	28′	29′	30′	31′	32′	33′	34′	35′	″
0	8·4081614	8·4130676	8·4179190	8·4227168	8·4274621	8·4321561	8·4367999	8·4413944	60
1	8·4082436	8·4131489	8·4179994	8·4227963	8·4275408	8·4322339	8·4368768	8·4414706	59
2	8·4083258	8·4132302	8·4180798	8·4228758	8·4276194	8·4323117	8·4369538	8·4415468	58
3	8·4084080	8·4133115	8·4181602	8·4229553	8·4276980	8·4323895	8·4370307	8·4416229	57
4	8·4084902	8·4133927	8·4182405	8·4230348	8·4277766	8·4324672	8·4371077	8·4416990	56
5	8·4085723	8·4134740	8·4183209	8·4231142	8·4278552	8·4325450	8·4371846	8·4417751	55
6	8·4086545	8·4135552	8·4184012	8·4231937	8·4279338	8·4326227	8·4372615	8·4418512	54
7	8·4087366	8·4136364	8·4184815	8·4232731	8·4280124	8·4327004	8·4373384	8·4419273	53
8	8·4088187	8·4137176	8·4185618	8·4233525	8·4280909	8·4327781	8·4374153	8·4420034	52
9	8·4089008	8·4137988	8·4186421	8·4234319	8·4281694	8·4328558	8·4374921	8·4420795	51
10	8·4089829	8·4138800	8·4187223	8·4235113	8·4282480	8·4329335	8·4375690	8·4421555	50
11	8·4090650	8·4139611	8·4188026	8·4235907	8·4283265	8·4330112	8·4376458	8·4422315	49
12	8·4091471	8·4140422	8·4188828	8·4236700	8·4284050	8·4330888	8·4377227	8·4423076	48
13	8·4092291	8·4141234	8·4189630	8·4237494	8·4284835	8·4331665	8·4377995	[illegible]	47
14	8·4093111	8·4142045	8·4190432	8·4238287	8·4285619	8·4332441	8·4378763	[illegible]	46
15	8·4093931	8·4142856	8·4191234	8·4239081	8·4286404	8·4333217	8·4379531	[illegible]	45
16	8·4094751	8·4143667	8·4192036	8·4239874	8·4287188	8·4333993	8·4380298	[illegible]	44
17	8·4095571	8·4144477	8·4192838	8·4240666	8·4287972	8·4334769	8·4381066	[illegible]	43
18	8·4096391	8·4145287	8·4193639	8·4241458	8·4288756	8·4335544	8·4381833	[illegible]	42
19	8·4097210	8·4146098	8·4194441	8·4242251	8·4289540	8·4336320	8·4382601	[illegible]	41
20	8·4098029	8·4146908	8·4195242	8·4243043	8·4290324	8·4337095	8·4383368	[illegible]	40
21	8·4098849	8·4147718	8·4196043	8·4243836	8·4291108	8·4337871	8·4384135	[illegible]	39
22	8·4099668	8·4148528	8·4196844	8·4244628	8·4291891	8·4338646	8·4384902	[illegible]	38
23	8·4100486	8·4149337	8·4197644	8·4245420	8·4292675	8·4339421	8·4385669	[illegible]	37
24	8·4101305	8·4150147	8·4198445	8·4246211	8·4293458	8·4340196	8·4386435	[illegible]	36
25	8·4102124	8·4150956	8·4199245	8·4247004	8·4294241	8·4340970	8·4387202	[illegible]	35
26	8·4102942	8·4151765	8·4200046	8·4247795	8·4295024	8·4341745	8·4387968	[illegible]	34
27	8·4103760	8·4152575	8·4200846	8·4248586	8·4295807	8·4342519	8·4388734	[illegible]	33
28	8·4104578	8·4153383	8·4201646	8·4249377	8·4296590	8·4343294	8·4389501	[illegible]	32
29	8·4105396	8·4154192	8·4202446	8·4250168	8·4297372	8·4344068	8·4390266	[illegible]	31
30	8·4106214	8·4155001	8·4203245	8·4250959	8·4298154	8·4344842	8·4391032	[illegible]	30
31	8·4107032	8·4155809	8·4204045	8·4251750	8·4298937	8·4345616	8·4391798	8·4437491	29
32	8·4107849	8·4156618	8·4204844	8·4252541	8·4299719	8·4346389	8·4392564	8·4438251	28
33	8·4108667	8·4157426	8·4205644	8·4253331	8·4300501	8·4347163	8·4393329	[illegible]	27
34	8·4109484	8·4158234	8·4206443	8·4254122	8·4301283	8·4347937	8·4394094	[illegible]	26
35	8·4110301	8·4159042	8·4207242	8·4254912	8·4302064	8·4348710	8·4394859	[illegible]	25
36	8·4111118	8·4159850	8·4208040	8·4255702	8·4302846	8·4349483	8·4395624	[illegible]	24
37	8·4111934	8·4160657	8·4208839	8·4256492	8·4303627	8·4350256	8·4396389	[illegible]	23
38	8·4112751	8·4161465	8·4209638	8·4257282	8·4304409	8·4351029	8·4397154	[illegible]	22
39	8·4113567	8·4162272	8·4210436	8·4258071	8·4305190	8·4351802	8·4397919	[illegible]	21
40	8·4114383	8·4163079	8·4211234	8·4258861	8·4305971	8·4352575	8·4398683	[illegible]	20
41	8·4115200	8·4163886	8·4212032	8·4259650	8·4306751	8·4353347	8·4399447	[illegible]	19
42	8·4116015	8·4164693	8·4212830	8·4260439	8·4307532	8·4354119	8·4400212	[illegible]	18
43	8·4116831	8·4165499	8·4213628	8·4261229	8·4308313	8·4354892	8·4400976	[illegible]	17
44	8·4117647	8·4166306	8·4214426	8·4262018	8·4309093	8·4355664	8·4401740	[illegible]	16
45	8·4118462	8·4167112	8·4215223	8·4262806	8·4309873	8·4356436	[illegible]	[illegible]	15
46	8·4119278	8·4167919	8·4216020	8·4263595	8·4310654	8·4357207	8·4403267	[illegible]	14
47	8·4120093	8·4168725	8·4216818	8·4264383	8·4311434	8·4357979	8·4404031	[illegible]	13
48	8·4120908	8·4169531	8·4217615	8·4265172	8·4312214	8·4358751	8·4404794	[illegible]	12
49	8·4121723	8·4170336	8·4218412	8·4265960	8·4312993	8·4359522	8·4405557	[illegible]	11
50	8·4122537	8·4171142	8·4219208	8·4266748	8·4313773	8·4360294	8·4406321	[illegible]	10
51	8·4123352	8·4171948	8·4220005	8·4267536	8·4314552	8·4361064	[illegible]	[illegible]	9
52	8·4124166	8·4172753	8·4220801	8·4268324	8·4315332	8·4361835	[illegible]	[illegible]	8
53	8·4124981	8·4173558	8·4221598	8·4269111	8·4316111	8·4362606	[illegible]	[illegible]	7
54	8·4125795	8·4174363	8·4222394	8·4269899	8·4316890	8·4363377	8·4409372	[illegible]	6
55	8·4126609	8·4175168	8·4223190	8·4270686	8·4317669	8·4364148	8·4410134	[illegible]	5
56	8·4127422	8·4175973	8·4223986	8·4271474	8·4318447	8·4364918	8·4410896	[illegible]	4
57	8·4128236	8·4176777	8·4224782	8·4272261	8·4319226	8·4365688	8·4411659	[illegible]	3
58	8·4129050	8·4177582	8·4225577	8·4273048	8·4320004	8·4366459	[illegible]	[illegible]	2
59	8·4129863	8·4178386	8·4226373	8·4273834	8·4320783	8·4367229	[illegible]	[illegible]	1
60	8·4130676	8·4179190	8·4227168	8·4274621	8·4321561	8·4367999	8·4413944	[illegible]	0
″	31′	30′	29′	28′	27′	26′	25′	24′	″

"	28'	29'	30'	31'	32'	33'	34'	35'	"
0	8·4083037	8·4132132	8·4180679	8·4228690	8·4276176	8·4323150	8·4369622	8·4415603	60
1	8·4083859	8·4132945	8·4181483	8·4229485	8·4276963	8·4323929	8·4370391	8·4416365	59
2	8·4084682	8·4133758	8·4182288	8·4230281	8·4277750	8·4324707	8·4371163	8·4417127	58
3	8·4085505	8·4134572	8·4183092	8·4231076	8·4278537	8·4325486	8·4371933	8·4417889	57
4	8·4086327	8·4135385	8·4183896	8·4231872	8·4279324	8·4326264	8·4372703	8·4418651	56
5	8·4087149	8·4136198	8·4184700	8·4232667	8·4280110	8·4327042	8·4373473	8·4419413	55
6	8·4087971	8·4137011	8·4185504	8·4233462	8·4280897	8·4327820	8·4374242	8·4420174	54
7	8·4088793	8·4137823	8·4186307	8·4234257	8·4281683	8·4328598	8·4375012	8·4420936	53
8	8·4089615	8·4138636	8·4187111	8·4235051	8·4282469	8·4329375	8·4375781	8·4421697	52
9	8·4090436	8·4139448	8·4187914	8·4235846	8·4283255	8·4330153	8·4376550	8·4422458	51
10	8·4091258	8·4140261	8·4188717	8·4236640	8·4284041	8·4330930	8·4377320	8·4423219	50
11	8·4092079	8·4141073	8·4189520	8·4237434	8·4284826	8·4331707	8·4378089	8·4423980	49
12	8·4092900	8·4141885	8·4190323	8·4238229	8·4285612	8·4332484	8·4378857	8·4424741	48
13	8·4093721	8·4142696	8·4191126	8·4239023	8·4286397	8·4333261	8·4379626	8·4425502	47
14	8·4094542	8·4143508	8·4191929	8·4239816	8·4287182	8·4334038	8·4380395	8·4426262	46
15	8·4095362	8·4144319	8·4192731	8·4240610	8·4287968	8·4334815	8·4381163	8·4427023	45
16	8·4096183	8·4145131	8·4193533	8·4241404	8·4288752	8·4335591	8·4381931	8·4427783	44
17	8·4097003	8·4145942	8·4194336	8·4242197	8·4289537	8·4336368	8·4382700	8·4428543	43
18	8·4097823	8·4146753	8·4195138	8·4242990	8·4290322	8·4337144	8·4383468	8·4429303	42
19	8·4098643	8·4147564	8·4195940	8·4243783	8·4291106	8·4337920	8·4384235	8·4430063	41
20	8·4099463	8·4148374	8·4196741	8·4244576	8·4291891	8·4338696	8·4385003	8·4430822	40
21	8·4100283	8·4149185	8·4197543	8·4245369	8·4292675	8·4339472	8·4385771	8·4431582	39
22	8·4101103	8·4149995	8·4198344	8·4246162	8·4293459	8·4340248	8·4386538	8·4432341	38
23	8·4101922	8·4150805	8·4199146	8·4246954	8·4294243	8·4341023	8·4387306	8·4433101	37
24	8·4102741	8·4151616	8·4199947	8·4247747	8·4295027	8·4341799	8·4388073	8·4433860	36
25	8·4103560	8·4152425	8·4200748	8·4248539	8·4295811	8·4342574	8·4388840	8·4434619	35
26	8·4104379	8·4153235	8·4201549	8·4249331	8·4296594	8·4343349	8·4389607	8·4435378	34
27	8·4105198	8·4154045	8·4202349	8·4250123	8·4297377	8·4344124	8·4390374	8·4436137	33
28	8·4106017	8·4154854	8·4203150	8·4250915	8·4298161	8·4344899	8·4391140	8·4436895	32
29	8·4106835	8·4155664	8·4203950	8·4251706	8·4298944	8·4345674	8·4391907	8·4437654	31
30	8·4107653	8·4156473	8·4204750	8·4252498	8·4299727	8·4346448	8·4392673	8·4438412	30
31	8·4108472	8·4157282	8·4205550	8·4253289	8·4300510	8·4347223	8·4393440	8·4439171	29
32	8·4109290	8·4158091	8·4206350	8·4254080	8·4301292	8·4347997	8·4394206	8·4439929	28
33	8·4110107	8·4158900	8·4207150	8·4254871	8·4302075	8·4348771	8·4394972	8·4440687	27
34	8·4110925	8·4159708	8·4207950	8·4255662	8·4302857	8·4349545	8·4395738	8·4441444	26
35	8·4111743	8·4160517	8·4208749	8·4256453	8·4303639	8·4350319	8·4396503	8·4442202	25
36	8·4112560	8·4161325	8·4209549	8·4257244	8·4304422	8·4351093	8·4397269	8·4442960	24
37	8·4113377	8·4162133	8·4210348	8·4258034	8·4305204	8·4351867	8·4398034	8·4443717	23
38	8·4114194	8·4162941	8·4211147	8·4258825	8·4305985	8·4352640	8·4398800	8·4444475	22
39	8·4115011	8·4163749	8·4211946	8·4259615	8·4306767	8·4353413	8·4399565	8·4445232	21
40	8·4115828	8·4164556	8·4212745	8·4260405	8·4307549	8·4354187	8·4400330	8·4445989	20
41	8·4116645	8·4165364	8·4213543	8·4261195	8·4308330	8·4354960	8·4401095	8·4446746	19
42	8·4117461	8·4166171	8·4214342	8·4261985	8·4309111	8·4355733	8·4401860	8·4447503	18
43	8·4118278	8·4166979	8·4215140	8·4262774	8·4309892	8·4356506	8·4402624	8·4448259	17
44	8·4119094	8·4167786	8·4215938	8·4263564	8·4310673	8·4357278	8·4403389	8·4449016	16
45	8·4119910	8·4168593	8·4216736	8·4264353	8·4311454	8·4358051	8·4404153	8·4449772	15
46	8·4120726	8·4169399	8·4217534	8·4265142	8·4312235	8·4358823	8·4404918	8·4450529	14
47	8·4121541	8·4170206	8·4218332	8·4265932	8·4313016	8·4359595	8·4405682	8·4451285	13
48	8·4122357	8·4171012	8·4219130	8·4266720	8·4313796	8·4360367	8·4406446	8·4452041	12
49	8·4123172	8·4171819	8·4219927	8·4267509	8·4314576	8·4361139	8·4407209	8·4452797	11
50	8·4123988	8·4172625	8·4220725	8·4268298	8·4315356	8·4361911	8·4407973	8·4453553	10
51	8·4124803	8·4173431	8·4221522	8·4269086	8·4316136	8·4362683	8·4408737	8·4454308	9
52	8·4125618	8·4174237	8·4222319	8·4269875	8·4316916	8·4363454	8·4409500	8·4455064	8
53	8·4126432	8·4175043	8·4223116	8·4270663	8·4317696	8·4364226	8·4410263	8·4455819	7
54	8·4127247	8·4175848	8·4223912	8·4271451	8·4318476	8·4364997	8·4411027	8·4456574	6
55	8·4128062	8·4176654	8·4224709	8·4272239	8·4319255	8·4365764	8·4411790	8·4457329	5
56	8·4128876	8·4177459	8·4225505	8·4273027	8·4320034	8·4366540	8·4412553	8·4458084	4
57	8·4129690	8·4178264	8·4226302	8·4273814	8·4320814	8·4367310	8·4413315	8·4458839	3
58	8·4130504	8·4179069	8·4227098	8·4274602	8·4321593	8·4368081	8·4414078	8·4459594	2
59	8·4131318	8·4179874	8·4227894	8·4275389	8·4322372	8·4368852	8·4414841	8·4460348	1
60	8·4132132	8·4180679	8·4228690	8·4276176	8·4323150	8·4369622	8·4415603	8·4461103	0
"	31'	30'	29'	28'	27'	26'	25'	24'	"

″	36′	37′	38′	39′	40′	41′	42′	43′	″
0	8·4459409	8·4504402	8·4548934	8·4593013	8·4636649	8·4679850	8·4722626	8·4764984	60
1	8·4460163	8·4505148	8·4549672	8·4593744	8·4637372	8·4680567	8·4723335	8·4765686	59
2	8·4460916	8·4505894	8·4550410	8·4594474	8·4638096	8·4681283	8·4724044	8·4766388	58
3	8·4461670	8·4506640	8·4551148	8·4595205	8·4638819	8·4681999	8·4724753	8·4767091	57
4	8·4462423	8·4507385	8·4551886	8·4595936	8·4639542	8·4682715	8·4725462	8·4767793	56
5	8·4463176	8·4508131	8·4552624	8·4596666	8·4640265	8·4683431	8·4726171	8·4768495	55
6	8·4463929	8·4508876	8·4553362	8·4597396	8·4640988	8·4684147	8·4726880	8·4769197	54
7	8·4464682	8·4509621	8·4554099	8·4598126	8·4641711	8·4684862	8·4727589	8·4769899	53
8	8·4465435	8·4510366	8·4554837	8·4598856	8·4642434	8·4685578	8·4728297	8·4770600	52
9	8·4466188	8·4511111	8·4555574	8·4599586	8·4643156	8·4686293	8·4729006	8·4771302	51
10	8·4466940	8·4511856	8·4556311	8·4600316	8·4643879	8·4687009	8·4729714	8·4772003	50
11	8·4467693	8·4512601	8·4557048	8·4601046	8·4644601	8·4687724	8·4730422	8·4772705	49
12	8·4468445	8·4513345	8·4557785	8·4601775	8·4645323	8·4688439	8·4731130	8·4773406	48
13	8·4469197	8·4514090	8·4558522	8·4602505	8·4646046	8·4689154	8·4731838	8·4774107	47
14	8·4469949	8·4514834	8·4559259	8·4603234	8·4646768	8·4689869	8·4732546	8·4774808	46
15	8·4470701	8·4515578	8·4559996	8·4603963	8·4647489	8·4690584	8·4733254	8·4775509	45
16	8·4471453	8·4516322	8·4560732	8·4604692	8·4648211	8·4691298	8·4733962	8·4776210	44
17	8·4472205	8·4517066	8·4561468	8·4605421	8·4648933	8·4692013	8·4734669	8·4776910	43
18	8·4472956	8·4517810	8·4562205	8·4606150	8·4649654	8·4692727	8·4735377	8·4777611	42
19	8·4473707	8·4518553	8·4562941	8·4606878	8·4650376	8·4693441	8·4736084	8·4778311	41
20	8·4474459	8·4519297	8·4563677	8·4607607	8·4651097	8·4694156	8·4736791	8·4779012	40
21	8·4475210	8·4520040	8·4564412	8·4608335	8·4651818	8·4694870	8·4737498	8·4779712	39
22	8·4475961	8·4520784	8·4565148	8·4609064	8·4652539	8·4695583	8·4738205	8·4780412	38
23	8·4476712	8·4521527	8·4565884	8·4609792	8·4653260	8·4696297	8·4738912	8·4781112	37
24	8·4477462	8·4522270	8·4566619	8·4610520	8·4653981	8·4697011	8·4739618	8·4781812	36
25	8·4478213	8·4523013	8·4567354	8·4611248	8·4654702	8·4697725	8·4740325	8·4782511	35
26	8·4478963	8·4523755	8·4568090	8·4611976	8·4655422	8·4698438	8·4741032	8·4783211	34
27	8·4479714	8·4524498	8·4568825	8·4612703	8·4656143	8·4699151	8·4741738	8·4783911	33
28	8·4480464	8·4525240	8·4569560	8·4613431	8·4656863	8·4699865	8·4742444	8·4784610	32
29	8·4481214	8·4525983	8·4570295	8·4614158	8·4657583	8·4700578	8·4743150	8·4785309	31
30	8·4481964	8·4526725	8·4571029	8·4614886	8·4658303	8·4701291	8·4743856	8·4786009	30
31	8·4482714	8·4527467	8·4571764	8·4615613	8·4659023	8·4702003	8·4744562	8·4786708	29
32	8·4483463	8·4528209	8·4572498	8·4616340	8·4659743	8·4702716	8·4745268	8·4787407	28
33	8·4484213	8·4528951	8·4573233	8·4617067	8·4660463	8·4703429	8·4745974	8·4788105	27
34	8·4484962	8·4529693	8·4573967	8·4617794	8·4661182	8·4704141	8·4746679	8·4788804	26
35	8·4485712	8·4530434	8·4574701	8·4618520	8·4661902	8·4704854	8·4747385	8·4789503	25
36	8·4486461	8·4531176	8·4575435	8·4619247	8·4662621	8·4705566	8·4748090	8·4790201	24
37	8·4487210	8·4531917	8·4576169	8·4619973	8·4663340	8·4706278	8·4748795	8·4790900	23
38	8·4487959	8·4532659	8·4576902	8·4620700	8·4664059	8·4706990	8·4749500	8·4791598	22
39	8·4488708	8·4533400	8·4577636	8·4621426	8·4664778	8·4707702	8·4750205	8·4792296	21
40	8·4489456	8·4534141	8·4578369	8·4622152	8·4665497	8·4708414	8·4750910	8·4792994	20
41	8·4490205	8·4534881	8·4579103	8·4622878	8·4666216	8·4709126	8·4751615	8·4793692	19
42	8·4490953	8·4535622	8·4579836	8·4623604	8·4666935	8·4709837	8·4752320	8·4794390	18
43	8·4491701	8·4536361	8·4580569	8·4624330	8·4667653	8·4710549	8·4753024	8·4795088	17
44	8·4492450	8·4537103	8·4581302	8·4625055	8·4668372	8·4711260	8·4753729	8·4795785	16
45	8·4493198	8·4537844	8·4582035	8·4625781	8·4669090	8·4711971	8·4754433	8·4796483	15
46	8·4493945	8·4538584	8·4582768	8·4626506	8·4669808	8·4712682	8·4755137	8·4797180	14
47	8·4494693	8·4539324	8·4583500	8·4627231	8·4670526	8·4713393	8·4755841	8·4797878	13
48	8·4495441	8·4540064	8·4584233	8·4627957	8·4671244	8·4714104	8·4756545	8·4798575	12
49	8·4496188	8·4540804	8·4584965	8·4628682	8·4671962	8·4714815	8·4757249	8·4799272	11
50	8·4496936	8·4541544	8·4585697	8·4629406	8·4672680	8·4715526	8·4757953	8·4799969	10
51	8·4497683	8·4542283	8·4586429	8·4630131	8·4673397	8·4716236	8·4758656	8·4800666	9
52	8·4498430	8·4543023	8·4587161	8·4630856	8·4674115	8·4716947	8·4759360	8·4801362	8
53	8·4499177	8·4543762	8·4587893	8·4631580	8·4674832	8·4717657	8·4760063	8·4802059	7
54	8·4499924	8·454450	8·4588625	8·4632305	8·4675549	8·4718367	8·4760766	8·4802755	6
55	8·4500671	8·4545240	8·4589357	8·4633029	8·4676266	8·4719077	8·4761470	8·4803452	5
56	8·4501417	8·4545979	8·4590088	8·4633753	8·4676983	8·4719787	8·4762173	8·4804148	4
57	8·4502164	8·4546718	8·4590819	8·4634477	8·4677700	8·4720497	8·4762876	8·4804844	3
58	8·4502910	8·4547457	8·4591551	8·4635201	8·4678417	8·4721207	8·4763578	8·4805540	2
59	8·4503656	8·4548195	8·4592282	8·4635925	8·4679134	8·4721916	8·4764281	8·4806236	1
60	8·4504402	8·4548934	8·4593013	8·4636649	8·4679850	8·4722626	8·4764984	8·4806932	0
″	23′	22′	21′	20′	19′	18′	17′	16′	″

"	36′	37′	38′	39′	40′	41′	42′	43′	"
0	8·4461103	8·4506131	8·4550699	8·4594814	8·4638486	8·4681725	8·4724538	8·4766933	60
1	8·4461857	8·4506878	8·4551438	8·4595545	8·4639211	8·4682442	8·4725248	8·4767636	59
2	8·4462611	8·4507624	8·4552176	8·4596277	8·4639935	8·4683159	8·4725957	8·4768339	58
3	8·4463365	8·4508371	8·4552915	8·4597008	8·4640659	8·4683875	8·4726667	8·4769042	57
4	8·4464119	8·4509117	8·4553654	8·4597739	8·4641382	8·4684592	8·4727377	8·4769745	56
5	8·4464873	8·4509863	8·4554392	8·4598470	8·4642106	8·4685309	8·4728086	8·4770448	55
6	8·4465627	8·4510609	8·4555130	8·4599201	8·4642830	8·4686025	8·4728796	8·4771150	54
7	8·4466380	8·4511354	8·4555868	8·4599932	8·4643553	8·4686741	8·4729505	8·4771853	53
8	8·4467133	8·4512100	8·4556607	8·4600662	8·4644276	8·4687458	8·4730214	8·4772555	52
9	8·4467887	8·4512846	8·4557344	8·4601393	8·4645000	8·4688174	8·4730923	8·4773257	51
10	8·4468640	8·4513591	8·4558082	8·4602123	8·4645723	8·4688890	8·4731632	8·4773959	50
11	8·4469393	8·4514336	8·4558820	8·4602853	8·4646446	8·4689605	8·4732341	8·4774661	49
12	8·4470146	8·4515081	8·4559558	8·4603584	8·4647168	8·4690321	8·4733050	8·4775363	48
13	8·4470898	8·4515826	8·4560295	8·4604314	8·4647891	8·4691037	8·4733758	8·4776065	47
14	8·4471651	8·4516571	8·4561032	8·4605043	8·4648614	8·4691752	8·4734467	8·4776766	46
15	8·4472404	8·4517316	8·4561769	8·4605773	8·4649336	8·4692468	8·4735175	8·4777468	45
16	8·4473156	8·4518061	8·4562506	8·4606503	8·4650059	8·4693183	8·4735884	8·4778169	44
17	8·4473908	8·4518805	8·4563243	8·4607232	8·4650781	8·4693898	8·4736592	8·4778871	43
18	8·4474660	8·4519549	8·4563980	8·4607962	8·4651503	8·4694613	8·4737300	8·4779572	42
19	8·4475412	8·4520294	8·4564717	8·4608691	8·4652225	8·4695328	8·4738008	8·4780273	41
20	8·4476164	8·4521038	8·4565453	8·4609420	8·4652947	8·4696043	8·4738715	8·4780974	40
21	8·4476916	8·4521782	8·4566190	8·4610149	8·4653669	8·4696757	8·4739423	8·4781675	39
22	8·4477667	8·4522526	8·4566926	8·4610878	8·4654390	8·4697472	8·4740131	8·4782375	38
23	8·4478419	8·4523269	8·4567662	8·4611607	8·4655112	8·4698186	8·4740838	8·4783076	37
24	8·4479170	8·4524013	8·4568398	8·4612336	8·4655833	8·4698900	8·4741545	8·4783776	36
25	8·4479921	8·4524757	8·4569134	8·4613064	8·4656555	8·4699615	8·4742253	8·4784477	35
26	8·4480672	8·4525500	8·4569870	8·4613792	8·4657276	8·4700329	8·4742960	8·4785177	34
27	8·4481423	8·4526243	8·4570606	8·4614521	8·4657997	8·4701043	8·4743667	8·4785877	33
28	8·4482174	8·4526986	8·4571341	8·4615249	8·4658718	8·4701756	8·4744374	8·4786577	32
29	8·4482925	8·4527729	8·4572077	8·4615977	8·4659439	8·4702470	8·4745080	8·4787277	31
30	8·4483675	8·4528472	8·4572812	8·4616705	8·4660159	8·4703184	8·4745787	8·4787977	30
31	8·4484426	8·4529215	8·4573547	8·4617433	8·4660880	8·4703897	8·4746494	8·4788677	29
32	8·4485176	8·4529957	8·4574282	8·4618160	8·4661600	8·4704611	8·4747200	8·4789376	28
33	8·4485926	8·4530700	8·4575017	8·4618888	8·4662321	8·4705324	8·4747906	8·4790076	27
34	8·4486676	8·4531442	8·4575752	8·4619615	8·4663041	8·4706037	8·4748612	8·4790775	26
35	8·4487426	8·4532184	8·4576487	8·4620343	8·4663761	8·4706750	8·4749319	8·4791475	25
36	8·4488176	8·4532926	8·4577221	8·4621070	8·4664481	8·4707463	8·4750025	8·4792174	24
37	8·4488925	8·4533668	8·4577956	8·4621797	8·4665201	8·4708176	8·4750730	8·4792873	23
38	8·4489675	8·4534410	8·4578690	8·4622524	8·4665921	8·4708888	8·4751436	8·4793572	22
39	8·4490424	8·4535152	8·4579424	8·4623251	8·4666640	8·4709601	8·4752142	8·4794271	21
40	8·4491173	8·4535893	8·4580158	8·4623978	8·4667360	8·4710313	8·4752847	8·4794969	20
41	8·4491923	8·4536635	8·4580892	8·4624704	8·4668079	8·4711026	8·4753553	8·4795668	19
42	8·4492672	8·4537376	8·4581626	8·4625431	8·4668798	8·4711738	8·4754258	8·4796366	18
43	8·4493420	8·4538117	8·4582360	8·4626157	8·4669517	8·4712450	8·4754963	8·4797065	17
44	8·4494169	8·4538859	8·4583094	8·4626883	8·4670236	8·4713162	8·4755668	8·4797763	16
45	8·4494918	8·4539599	8·4583827	8·4627609	8·4670955	8·4713874	8·4756373	8·4798461	15
46	8·4495666	8·4540340	8·4584560	8·4628335	8·4671674	8·4714586	8·4757078	8·4799159	14
47	8·4496415	8·4541081	8·4585293	8·4629061	8·4672393	8·4715297	8·4757783	8·4799857	13
48	8·4497163	8·4541822	8·4586027	8·4629787	8·4673111	8·4716009	8·4758487	8·4800555	12
49	8·4497911	8·4542562	8·4586760	8·4630512	8·4673830	8·4716720	8·4759192	8·4801252	11
50	8·4498659	8·4543302	8·4587492	8·4631238	8·4674548	8·4717431	8·4759896	8·4801950	10
51	8·4499407	8·4544043	8·4588225	8·4631963	8·4675266	8·4718142	8·4760600	8·4802647	9
52	8·4500154	8·4544783	8·4588958	8·4632689	8·4675984	8·4718853	8·4761304	8·4803345	8
53	8·4500902	8·4545523	8·4589690	8·4633414	8·4676702	8·4719564	8·4762008	8·4804042	7
54	8·4501649	8·4546262	8·4590422	8·4634139	8·4677420	8·4720275	8·4762712	8·4804739	6
55	8·4502397	8·4547002	8·4591155	8·4634864	8·4678138	8·4720986	8·4763416	8·4805436	5
56	8·4503144	8·4547742	8·4591887	8·4635588	8·4678855	8·4721696	8·4764120	8·4806133	4
57	8·4503891	8·4548481	8·4592619	8·4636313	8·4679573	8·4722407	8·4764823	8·4806830	3
58	8·4504638	8·4549220	8·4593351	8·4637038	8·4680290	8·4723117	8·4765527	8·4807527	2
59	8·4505385	8·4549960	8·4594082	8·4637762	8·4681008	8·4723827	8·4766230	8·4808223	1
60	8·4506131	8·4550699	8·4594814	8·4638486	8·4681725	8·4724538	8·4766933	8·4808920	0
"	23′	22′	21′	20′	19′	18′	17′	16′	"

″	36′	37′	38′	39′	40′	41′	42′	43′	″
0	8·4459409	8·4504402	8·4548934	8·4593013	8·4636649	8·4679450	8·4722620	8·4764944	60
1	8·4460163	8·4505148	8·4549672	8·4593744	8·4637372	8·4680567	8·4723335	8·4765686	59
2	8·4460916	8·4505894	8·4550410	8·4594474	8·4638096	8·4681283	8·4724044	8·4766388	58
3	8·4461670	8·4506640	8·4551148	8·4595205	8·4638819	8·4681999	8·4724753	8·4767091	57
4	8·4462423	8·4507385	8·4551886	8·4595936	8·4639542	8·4682715	8·4725462	8·4767793	56
5	8·4463176	8·4508131	8·4552624	8·4596666	8·4640265	8·4683431	8·4726171	8·4768495	55
6	8·4463929	8·4508876	8·4553362	8·4597396	8·4640988	8·4684147	8·4726880	8·4769197	54
7	8·4464682	8·4509621	8·4554099	8·4598126	8·4641711	8·4684862	8·4727589	8·4769899	53
8	8·4465435	8·4510366	8·4554837	8·4598856	8·4642434	8·4685578	8·4728297	8·4770600	52
9	8·4466188	8·4511111	8·4555574	8·4599586	8·4643156	8·4686293	8·4729006	8·4771302	51
10	8·4466940	8·4511856	8·4556311	8·4600316	8·4643879	8·4687009	8·4729714	8·4772003	50
11	8·4467693	8·4512601	8·4557048	8·4601046	8·4644601	8·4687724	8·4730422	8·4772705	49
12	8·4468445	8·4513345	8·4557785	8·4601775	8·4645323	8·4688439	8·4731130	8·4773406	48
13	8·4469197	8·4514090	8·4558522	8·4602505	8·4646046	8·4689154	8·4731838	8·4774107	47
14	8·4469949	8·4514834	8·4559259	8·4603234	8·4646768	8·4689869	8·4732546	8·4774808	46
15	8·4470701	8·4515578	8·4559996	8·4603963	8·4647489	8·4690584	8·4733254	8·4775509	45
16	8·4471453	8·4516322	8·4560732	8·4604692	8·4648211	8·4691298	8·4733962	8·4776210	44
17	8·4472205	8·4517066	8·4561468	8·4605421	8·4648933	8·4692013	8·4734669	8·4776910	43
18	8·4472956	8·4517810	8·4562205	8·4606150	8·4649654	8·4692727	8·4735377	8·4777611	42
19	8·4473707	8·4518553	8·4562941	8·4606878	8·4650376	8·4693441	8·4736084	8·4778311	41
20	8·4474459	8·4519297	8·4563677	8·4607607	8·4651097	8·4694156	8·4736791	8·4779012	40
21	8·4475210	8·4520040	8·4564412	8·4608335	8·4651818	8·4694870	8·4737498	8·4779712	39
22	8·4475961	8·4520784	8·4565148	8·4609064	8·4652539	8·4695583	8·4738205	8·4780412	38
23	8·4476712	8·4521527	8·4565884	8·4609792	8·4653260	8·4696297	8·4738912	8·4781112	37
24	8·4477462	8·4522270	8·4566619	8·4610520	8·4653981	8·4697011	8·4739618	8·4781812	36
25	8·4478213	8·4523013	8·4567354	8·4611248	8·4654702	8·4697725	8·4740325	8·4782511	35
26	8·4478963	8·4523755	8·4568090	8·4611976	8·4655422	8·4698438	8·4741032	8·4783211	34
27	8·4479714	8·4524498	8·4568825	8·4612703	8·4656143	8·4699151	8·4741738	8·4783911	33
28	8·4480464	8·4525240	8·4569560	8·4613431	8·4656863	8·4699865	8·4742444	8·4784610	32
29	8·4481214	8·4525983	8·4570295	8·4614158	8·4657583	8·4700578	8·4743150	8·4785309	31
30	8·4481964	8·4526725	8·4571029	8·4614886	8·4658303	8·4701291	8·4743856	8·4786009	30
31	8·4482714	8·4527467	8·4571764	8·4615613	8·4659023	8·4702003	8·4744562	8·4786708	29
32	8·4483463	8·4528209	8·4572498	8·4616340	8·4659743	8·4702716	8·4745268	8·4787407	28
33	8·4484213	8·4528951	8·4573233	8·4617067	8·4660463	8·4703429	8·4745974	8·4788105	27
34	8·4484962	8·4529693	8·4573967	8·4617794	8·4661182	8·4704141	8·4746679	8·4788804	26
35	8·4485712	8·4530434	8·4574701	8·4618520	8·4661902	8·4704854	8·4747385	8·4789503	25
36	8·4486461	8·4531176	8·4575435	8·4619247	8·4662621	8·4705566	8·4748090	8·4790201	24
37	8·4487210	8·4531917	8·4576169	8·4619973	8·4663340	8·4706278	8·4748795	8·4790900	23
38	8·4487959	8·4532659	8·4576902	8·4620700	8·4664059	8·4706990	8·4749500	8·4791598	22
39	8·4488708	8·4533400	8·4577636	8·4621426	8·4664778	8·4707702	8·4750205	8·4792296	21
40	8·4489456	8·4534141	8·4578369	8·4622152	8·4665497	8·4708414	8·4750910	8·4792994	20
41	8·4490205	8·4534881	8·4579103	8·4622878	8·4666216	8·4709126	8·4751615	8·4793692	19
42	8·4490953	8·4535622	8·4579836	8·4623604	8·4666935	8·4709837	8·4752320	8·4794390	18
43	8·4491701	8·4536363	8·4580569	8·4624330	8·4667653	8·4710549	8·4753024	8·4795088	17
44	8·4492450	8·4537103	8·4581302	8·4625055	8·4668372	8·4711260	8·4753729	8·4795785	16
45	8·4493198	8·4537844	8·4582035	8·4625781	8·4669090	8·4711971	8·4754433	8·4796483	15
46	8·4493945	8·4538584	8·4582768	8·4626506	8·4669808	8·4712682	8·4755137	[illegible]	14
47	8·4494693	8·4539324	8·4583500	8·4627231	8·4670526	8·4713393	8·4755841	[illegible]	13
48	8·4495441	8·4540064	8·4584233	8·4627957	8·4671244	8·4714104	8·4756545	[illegible]	12
49	8·4496188	8·4540804	8·4584965	8·4628682	8·4671962	8·4714815	8·4757249	[illegible]	[illegible]
50	8·4496936	8·4541543	8·4585697	8·4629406	8·4672680	8·4715526	8·4757953	[illegible]	[illegible]
51	8·4497683	8·4542283	8·4586429	8·4630131	8·4673397	[illegible]	8·4758656	[illegible]	[illegible]
52	8·4498430	8·4543023	8·4587161	8·4630856	8·4674115	8·4716947	8·4759360	[illegible]	[illegible]
53	8·4499177	8·4543762	8·4587893	8·4631580	8·4674832	[illegible]	8·4760063	[illegible]	[illegible]
54	8·4499924	8·4544501	8·4588625	8·4632305	8·4675549	[illegible]	[illegible]	[illegible]	[illegible]
55	8·4500671	8·4545240	8·4589357	8·4633029	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
56	8·4501417	8·4545979	8·4590088	8·4633754	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
57	8·4502164	8·4546718	8·4590819	8·4634477	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
58	8·4502910	8·4547457	8·4591551	8·4635[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
59	8·4503656	8·4548195	8·4592282	8·4635[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
60	8·4504402	8·4548934	8·4593013	8·46[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
″	23′	22′	21′	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

"	36'	37'	38'	39'	40'	41'	42'	43'	"
0	8·4461103	8·4506131	8·4550699	8·4594814	8·4638486	8·4681725	8·4724538	8·4766933	60
1	8·4461857	8·4506878	8·4551438	8·4595545	8·4639211	8·4682442	8·4725248	8·4767630	59
2	8·4462611	8·4507624	8·4552176	8·4596277	8·4639935	8·4683159	8·4725957	8·4768339	58
3	8·4463365	8·4508371	8·4552915	8·4597008	8·4640659	8·4683875	8·4726667	8·4769042	57
4	8·4464119	8·4509117	8·4553654	8·4597739	8·4641382	8·4684592	8·4727377	8·4769745	56
5	8·4464873	8·4509863	8·4554392	8·4598470	8·4642106	8·4685309	8·4728086	8·4770448	55
6	8·4465627	8·4510609	8·4555130	8·4599201	8·4642830	8·4686025	8·4728796	8·4771150	54
7	8·4466380	8·4511354	8·4555868	8·4599932	8·4643553	8·4686741	8·4729505	8·4771853	53
8	8·4467133	8·4512100	8·4556607	8·4600662	8·4644276	8·4687458	8·4730214	8·4772555	52
9	8·4467887	8·4512846	8·4557344	8·4601393	8·4645000	8·4688174	8·4730923	8·4773257	51
10	8·4468640	8·4513591	8·4558082	8·4602123	8·4645723	8·4688890	8·4731632	8·4773959	50
11	8·4469393	8·4514336	8·4558820	8·4602853	8·4646446	8·4689605	8·4732341	8·4774661	49
12	8·4470146	8·4515081	8·4559558	8·4603584	8·4647168	8·4690321	8·4733050	8·4775363	48
13	8·4470898	8·4515826	8·4560295	8·4604314	8·4647891	8·4691037	8·4733758	8·4776065	47
14	8·4471651	8·4516571	8·4561032	8·4605043	8·4648614	8·4691752	8·4734467	8·4776766	46
15	8·4472404	8·4517316	8·4561769	8·4605773	8·4649336	8·4692468	8·4735175	8·4777468	45
16	8·4473156	8·4518061	8·4562506	8·4606503	8·4650059	8·4693183	8·4735884	8·4778169	44
17	8·4473908	8·4518805	8·4563243	8·4607232	8·4650781	8·4693898	8·4736592	8·4778871	43
18	8·4474660	8·4519549	8·4563980	8·4607962	8·4651503	8·4694613	8·4737300	8·4779572	42
19	8·4475412	8·4520294	8·4564717	8·4608691	8·4652225	8·4695328	8·4738008	8·4780273	41
20	8·4476164	8·4521038	8·4565453	8·4609420	8·4652947	8·4696043	8·4738715	8·4780974	40
21	8·4476916	8·4521782	8·4566190	8·4610149	8·4653669	8·4696757	8·4739423	8·4781675	39
22	8·4477667	8·4522526	8·4566926	8·4610878	8·4654390	8·4697472	8·4740131	8·4782375	38
23	8·4478419	8·4523269	8·4567662	8·4611607	8·4655112	8·4698186	8·4740838	8·4783076	37
24	8·4479170	8·4524013	8·4568398	8·4612336	8·4655833	8·4698900	8·4741545	8·4783776	36
25	8·4479921	8·4524757	8·4569134	8·4613064	8·4656555	8·4699615	8·4742253	8·4784477	35
26	8·4480672	8·4525500	8·4569870	8·4613792	8·4657276	8·4700329	8·4742960	8·4785177	34
27	8·4481423	8·4526243	8·4570606	8·4614521	8·4657997	8·4701043	8·4743667	8·4785877	33
28	8·4482174	8·4526986	8·4571341	8·4615249	8·4658718	8·4701756	8·4744374	8·4786577	32
29	8·4482925	8·4527729	8·4572077	8·4615977	8·4659439	8·4702470	8·4745080	8·4787277	31
30	8·4483675	8·4528472	8·4572812	8·4616705	8·4660159	8·4703184	8·4745787	8·4787977	30
31	8·4484426	8·4529215	8·4573547	8·4617433	8·4660880	8·4703897	8·4746494	8·4788677	29
32	8·4485176	8·4529957	8·4574282	8·4618160	8·4661600	8·4704611	8·4747200	8·4789376	28
33	8·4485926	8·4530700	8·4575017	8·4618888	8·4662321	8·4705324	8·4747906	8·4790076	27
34	8·4486676	8·4531442	8·4575752	8·4619615	8·4663041	8·4706037	8·4748612	8·4790775	26
35	8·4487426	8·4532184	8·4576487	8·4620343	8·4663761	8·4706750	8·4749319	8·4791475	25
36	8·4488176	8·4532926	8·4577221	8·4621070	8·4664481	8·4707463	8·4750025	8·4792174	24
37	8·4488925	8·4533668	8·4577956	8·4621797	8·4665201	8·4708176	8·4750730	8·4792873	23
38	8·4489675	8·4534410	8·4578690	8·4622524	8·4665921	8·4708888	8·4751436	8·4793572	22
39	8·4490424	8·4535152	8·4579424	8·4623251	8·4666640	8·4709601	8·4752142	8·4794271	21
40	8·4491173	8·4535893	8·4580158	8·4623978	8·4667360	8·4710313	8·4752847	8·4794969	20
41	8·4491923	8·4536635	8·4580892	8·4624704	8·4668079	8·4711026	8·4753553	8·4795668	19
42	8·4492672	8·4537376	8·4581626	8·4625431	8·4668798	8·4711738	8·4754258	8·4796366	18
43	8·4493420	8·4538117	8·4582360	8·4626157	8·4669517	8·4712450	8·4754963	8·4797065	17
44	8·4494169	8·4538859	8·4583094	8·4626883	8·4670236	8·4713162	8·4755668	8·4797763	16
45	8·4494918	8·4539599	8·4583827	8·4627609	8·4670955	8·4713874	8·4756373	8·4798461	15
46	8·4495666	8·4540340	8·4584560	8·4628335	8·4671674	8·4714586	8·4757078	8·4799159	14
47	8·4496416	8·4541081	8·4585295	8·4629061	8·4672393	8·4715297	8·4757783	8·4799857	13
48	8·4497163	8·4541822	8·4586027	8·4629787	8·4673111	8·4716009	8·4758487	8·4800555	12
49	8·4497911	8·4542562	8·4586760	8·4630512	8·4673830	8·4716720	8·4759192	8·4801252	11
50	8·4498659	8·4543302	8·4587492	8·4631238	8·4674548	8·4717431	8·4759896	8·4801950	10
51	8·4499407	8·4544043	8·4588225	8·4631963	8·4675266	8·4718142	8·4760600	8·4802648	9
52	8·4500154	8·4544783	8·4588958	8·4632689	8·4675984	8·4718853	8·4761304	8·4803345	8
53	8·4500902	[illegible]	8·4589690	8·4633414	8·4676702	8·4719564	8·4762008	8·4804042	7
54	8·4501649	[illegible]	8·4590422	[illegible]	[illegible]	8·4720275	8·4762712	8·4804739	6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8·4720986	8·4763416	8·4805436	5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8·4721696	8·4764120	8·4806133	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8·4722407	8·4764823	8·4806830	3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8·4723117	8·4765527	8·4807527	2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8·4723827	8·4766230	8·4808223	1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8·4724538	8·4766933	8·4808920	0
						18'	17'	16'	

″	44′	45′	46′	47′	48′	49′	50′	51′	″
0	8·4806932	8·4848479	8·488963[illegible]	8·4930398	8·4970784	8·5010798	8·5050447	8·5089736	60
1	8·4807628	8·4849168	8·4890314	8·4931074	8·4971454	8·5011462	8·5051105	8·5090388	59
2	8·48083[illegible]	8·4849857	8·4890997	8·4931750	8·4972124	8·5012126	8·5051762	8·5091040	58
3	8·4809019	8·4850546	8·4891679	8·4932426	8·4972794	8·5012790	8·5052420	8·5091691	57
4	8·4809714	8·4851235	8·489[illegible]	8·4933102	8·49734[illegible]	8·50134[illegible]	8·5053077	8·509[illegible]	56
5	8·4810410	8·4851923	[illegible]	8·4933778	8·4974133	8·5014116	8·5053735	8·5092994	55
6	8·4811[illegible]	8·4852612	8·48937[illegible]6	8·49[illegible]4453	8·4974802	8·5014780	8·5054392	8·5093646	54
7	8·4811800	8·4853300	8·4894407	8·4935129	8·4975472	8·5015443	8·5055049	8·5094297	53
8	8·4812497	8·4853989	8·4895089	8·4935804	8·4976141	8·5016106	8·5055706	8·5094948	52
9	8·4813193	8·4854677	8·4895771	8·4936480	8·4976810	8·5016769	8·5056364	8·5095599	51
10	8·4813884	8·48553[illegible]	8·4896453	8·4937155	8·4977479	8·5017432	8·5057020	8·5096250	50
11	8·4814579	8·4856[illegible]	8·4897134	8·4937830	8·4978148	8·5018095	8·5057677	8·5096901	49
12	8·4815273	8·4856741	8·4897816	8·4938505	8·4978817	8·5018757	8·5058333	8·5097552	48
13	8·4815968	8·4857429	8·4898497	8·4939180	8·4979485	8·5019420	8·5058990	8·5098202	47
14	8·4816662	8·4858116	8·4899178	8·4939855	8·4980154	8·5020082	8·5059646	8·5098853	46
15	8·4817356	8·4858804	8·4899859	8·4940530	8·4980823	8·5020745	8·5060303	8·5099503	45
16	8·4818050	8·4859491	8·4900540	8·4941204	8·4981491	8·5021407	8·5060959	8·5100154	44
17	8·4818744	8·4860179	8·4901221	8·4941879	8·4982159	8·5022069	8·5061615	8·5100804	43
18	8·4819438	8·4860866	8·4901902	8·4942553	8·4982827	8·5022731	8·5062271	8·5101454	42
19	8·4820132	8·4861553	8·4902582	8·4943228	8·498349[illegible]	8·5023393	8·5062927	8·5102104	41
20	8·4820825	8·4862240	8·4903263	8·4943902	8·4984163	8·5024055	8·5063583	8·5102754	40
21	8·4821519	8·4862927	8·4903943	8·4944576	8·4984831	8·5024717	8·5064239	8·5103404	39
22	8·4822212	8·4863614	8·4904624	8·4945250	8·4985499	8·5025378	8·5064894	8·5104054	38
23	8·482290[illegible]	8·4864300	8·4905304	8·4945924	8·4986167	8·5026040	8·5065550	8·5104703	37
24	8·4823599	8·4864987	8·4905984	8·4946597	8·4986834	8·5026701	8·5066205	8·5105353	36
25	8·4824292	8·4865673	8·4906664	8·4947271	8·4987502	8·5027363	8·5066861	8·5106002	35
26	8·4824985	8·4866360	8·4907344	8·4947945	8·4988169	8·5028024	8·5067516	8·51066[illegible]2	34
27	8·4825677	8·4867046	8·4908024	8·4948618	8·4988836	8·5028685	8·5068171	8·5107301	33
28	8·4826370	8·4867732	8·4908703	8·4949292	8·4989504	8·5029346	8·5068826	8·5107950	32
29	8·4827063	8·4868418	8·4909383	8·4949965	8·4990171	8·5030007	8·5069481	8·5108599	31
30	8·4827755	8·4869104	8·4910063	8·4950638	8·4990838	8·5030668	8·5070136	8·5109248	30
31	8·4828448	8·4869790	8·4910742	8·4951311	8·4991504	8·5031329	8·5070791	8·5109897	29
32	8·4829140	8·4870476	8·4911421	8·4951984	8·4992171	8·5031989	8·50714[illegible]	8·5110546	28
33	8·4829832	8·4871161	8·4912100	8·4952657	8·4992838	8·5032650	8·5072100	8·5111195	27
34	8·4830524	8·4871847	8·4912779	8·4953330	8·4993504	8·5033310	[illegible]	8·5111843	26
35	8·4831216	8·4872532	8·4913458	8·4954002	8·4994171	8·5033971	[illegible]	8·5112492	25
36	8·4831908	8·4873217	8·4914137	8·4954675	8·4994837	8·5034631	8·5074063	8·5113140	24
37	8·4832600	8·4873903	8·4914816	8·4955347	8·4995503	8·5035291	8·5074717	8·5113789	23
38	8·4833291	8·4874588	8·4915495	8·4956020	8·4996169	8·5035951	8·5075371	8·5114437	22
39	8·4833983	8·4875273	8·4916173	8·4956692	8·49968[illegible]	8·50366[illegible]	8·5076025	8·5115085	21
40	8·4834674	8·4875957	8·4916852	8·4957[illegible]	8·4997501	8·5037[illegible]	8·5076679	8·5115733	20
41	8·4835365	8·4876642	8·4917530	8·4958036	8·4998167	8·50379[illegible]	8·5077333	8·5116381	19
42	8·4836057	8·4877327	8·4918208	8·49587[illegible]	8·4998833	8·5038[illegible]	8·5077987	8·5117029	18
43	8·48367[illegible]	8·4878011	8·4918886	8·49593[illegible]	8·4999499	8·5039250	8·5078640	8·5117676	17
44	8·4837439	8·4878696	8·4919564	8·4960051	8·5000164	8·5039909	8·5079294	8·5118324	16
45	8·4838129	8·4879380	8·4920242	8·4960723	8·5000829	8·5040569	8·5079947	8·5118972	15
46	8·4838820	8·4880064	8·4920920	8·4961394	8·5001495	8·504122[illegible]	8·5080601	8·5119619	14
47	8·4839511	8·4880748	8·4921598	8·4962066	8·5002160	8·5041887	8·5081254	8·5120266	13
48	8·4840201	8·4881432	8·492227[illegible]	8·4962737	8·5002825	8·5042546	8·5081907	8·5120914	12
49	8·4840892	8·4882116	8·4922953	8·4963408	8·5003490	8·504[illegible]205	8·5082560	8·5121561	11
50	8·4841582	8·4882800	8·4923630	8·4964079	8·5004155	8·5043864	8·5083213	8·51[illegible]208	10
51	8·4842272	8·48834[illegible]	8·4924307	8·49647[illegible]	8·500[illegible]820	8·5044523	8·5083866	8·5122[illegible]	9
52	8·48429[illegible]	8·48841[illegible]7	8·4924984	8·4965421	8·50054[illegible]	8·5045[illegible]	8·50845[illegible]	8·51235[illegible]	8
53	8·4843652	8·4884[illegible]	8·4925661	8·4966092	8·5006149	8·5045[illegible]	8·5085171	[illegible]	7
54	8·48443[illegible]2	8·4885534	8·4926338	8·4966763	8·5006814	8·5046492	8·5085823	[illegible]	6
55	8·4845032	8·4886217	8·4927015	8·49674[illegible]	8·5007478	8·5047157	8·50864[illegible]	[illegible]	5
56	8·4845721	8·4886900	8·4927692	8·4968104	8·5008142	8·5047816	8·50871[illegible]	[illegible]	4
57	8·4846411	8·4887583	8·4928368	8·4968774	8·5008806	8·5048473	8·5087780	[illegible]	3
58	8·484710[illegible]	8·48882[illegible]	8·4929045	8·4969444	8·5009471	8·5049[illegible]	8·5088[illegible]	[illegible]	2
59	8·4847790	8·4888949	8·4929721	8·4970114	8·5010135	8·50497[illegible]	[illegible]	[illegible]	1
60	8·4848479	8·4889632	8·4930398	8·4970784	8·5010798	8·5050447	8·5089736	[illegible]	0
″	15′	14′	13′	12′	11′	10′	9′	8′	″

″	44′	45′	46′	47′	48′	49′	50′	51′	″
0	8·4808920	8·4850505	8·4891696	8·4932502	8·4972928	8·5012982	8·5052671	8·5092001	60
1	8·4809616	8·4851195	8·4892380	8·4933179	8·4973598	8·5013646	8·5053329	8·5092653	59
2	8·4810312	8·4851884	8·4893063	8·4933855	8·4974269	8·5014311	8·5053987	8·5093305	58
3	8·4811008	8·4852574	8·4893746	8·4934532	8·4974939	8·5014975	8·5054646	8·5093958	57
4	8·4811704	8·4853263	8·4894429	8·4935208	8·4975610	8·5015639	8·5055304	8·5094610	56
5	8·4812400	8·4853953	8·4895112	8·4935885	8·4976280	8·5016303	8·5055962	8·5095262	55
6	8·4813096	8·4854642	8·4895794	8·4936561	8·4976950	8·5016967	8·5056620	8·5095914	54
7	8·4813792	8·4855331	8·4896477	8·4937237	8·4977620	8·5017631	8·5057277	8·5096566	53
8	8·4814487	8·4856020	8·4897159	8·4937914	8·4978290	8·5018295	8·5057935	8·5097218	52
9	8·4815183	8·4856709	8·4897842	8·4938590	8·4978959	8·5018958	8·5058593	8·5097870	51
10	8·4815878	8·4857397	8·4898524	8·4939266	8·4979629	8·5019622	8·5059250	8·5098521	50
11	8·4816574	8·4858086	8·4899206	8·4939941	8·4980299	8·5020285	8·5059908	8·5099173	49
12	8·4817269	8·4858775	8·4899888	8·4940617	8·4980968	8·5020949	8·5060565	8·5099824	48
13	8·4817964	8·4859463	8·4900570	8·4941293	8·4981638	8·5021612	8·5061222	8·5100475	47
14	8·4818659	8·4860151	8·4901252	8·4941968	8·4982307	8·5022275	8·5061879	8·5101127	46
15	8·4819353	8·4860839	8·4901934	8·4942643	8·4982976	8·5022938	8·5062536	8·5101778	45
16	8·4820048	8·4861527	8·4902615	8·4943319	8·4983645	8·5023601	8·5063193	8·5102429	44
17	8·4820743	8·4862216	8·4903297	8·4943994	8·4984314	8·5024264	8·5063850	8·5103080	43
18	8·4821437	8·4862903	8·4903978	8·4944669	8·4984983	8·5024927	8·5064507	8·5103731	42
19	8·4822131	8·4863591	8·4904660	8·4945344	8·4985652	8·5025589	8·5065164	8·5104381	41
20	8·4822826	8·4864279	8·4905341	8·4946019	8·4986320	8·5026252	8·5065820	8·5105032	40
21	8·4823520	8·4864966	8·4906022	8·4946694	8·4986989	8·5026914	8·5066477	8·5105683	39
22	8·4824214	8·4865654	8·4906703	8·4947368	8·4987657	8·5027576	8·5067133	8·5106333	38
23	8·4824908	8·4866341	8·4907384	8·4948043	8·4988325	8·5028239	8·5067789	8·5106983	37
24	8·4825602	8·4867028	8·4908065	8·4948717	8·4988994	8·5028901	8·5068445	8·5107634	36
25	8·4826295	8·4867716	8·4908745	8·4949392	8·4989662	8·5029563	8·5069101	8·5108284	35
26	8·4826989	8·4868403	8·4909426	8·4950066	8·4990330	8·5030225	8·5069757	8·5108934	34
27	8·4827682	8·4869089	8·4910106	8·4950740	8·4990998	8·5030887	8·5070413	8·5109584	33
28	8·4828376	8·4869776	8·4910787	8·4951414	8·4991666	8·5031548	8·5071069	8·5110234	32
29	8·4829069	8·4870463	8·4911467	8·4952088	8·4992333	8·5032210	8·5071724	8·5110883	31
30	8·4829762	8·4871149	8·4912147	8·4952762	8·4993001	8·5032871	8·5072380	8·5111533	30
31	8·4830455	8·4871836	8·4912827	8·4953435	8·4993668	8·5033533	8·5073035	8·5112183	29
32	8·4831148	8·4872522	8·4913507	8·4954109	8·4994336	8·5034194	8·5073691	8·5112832	28
33	8·4831841	8·4873209	8·4914187	8·4954783	8·4995003	8·5034855	8·5074346	8·5113482	27
34	8·4832533	8·4873895	8·4914866	8·4955456	8·4995670	8·5035517	8·5075001	8·5114131	26
35	8·4833226	8·4874581	8·4915546	8·4956129	8·4996337	8·5036178	8·5075656	8·5114780	25
36	8·4833919	8·4875267	8·4916226	8·4956802	8·4997004	8·5036838	8·5076311	8·5115429	24
37	8·4834611	8·4875952	8·4916905	8·4957476	8·4997671	8·5037499	8·5076966	8·5116078	23
38	8·4835303	8·4876638	8·4917584	8·4958148	8·4998338	8·5038160	8·5077621	8·5116727	22
39	8·4835995	8·4877324	8·4918263	8·4958821	8·4999005	8·5038821	8·5078275	8·5117376	21
40	8·4836687	8·4878009	8·4918942	8·4959494	8·4999671	8·5039481	8·5078930	8·5118025	20
41	8·4837379	8·4878695	8·4919621	8·4960167	8·5000338	8·5040142	8·5079584	8·5118673	19
42	8·4838071	8·4879380	8·4920300	8·4960839	8·5001004	8·5040802	8·5080239	8·5119322	18
43	8·4838763	8·4880065	8·4920979	8·4961512	8·5001671	8·5041462	8·5080893	8·5119970	17
44	8·4839454	8·4880750	8·4921658	8·4962184	8·5002337	8·5042122	8·5081547	8·5120618	16
45	8·4840146	8·4881435	8·4922336	8·4962856	8·5003003	8·5042782	8·5082201	8·5121267	15
46	8·4840837	8·4882120	8·4923015	8·4963529	8·5003669	8·5043442	8·5082855	8·5121915	14
47	8·4841528	8·4882805	8·4923693	8·4964201	8·5004335	8·5044102	8·5083509	8·5122563	13
48	8·4842220	8·4883489	8·4924371	8·4964873	8·5005000	8·5044762	8·5084163	8·5123211	12
49	8·4842911	8·4884174	8·4925049	8·4965544	8·5005666	8·5045421	8·5084817	8·5123859	11
50	8·4843602	8·4884858	8·4925727	8·4966216	8·5006332	8·5046081	8·5085470	8·5124506	10
51	8·4844292	8·4885543	8·4926405	8·4966888	8·5006997	8·5046740	8·5086124	8·5125154	9
52	8·4844983	8·4886227	8·4927083	8·4967559	8·5007663	8·5047400	8·5086777	8·5125801	8
53	8·4845674	8·4886911	8·4927761	8·4968231	8·5008328	8·[illegible]	8·5087430	8·5126449	7
54	8·4846364	8·4887595	8·4928438	8·4968902	8·5008993	8·5048718	8·5088084	8·5127096	6
55	8·4847055	8·4888279	8·4929116	8·4969573	8·5009658	8·5049377	8·5088737	8·5127743	5
56	8·4847745	8·4888962	8·4929793	8·4970244	8·5010323	8·5050036	8·5089390	8·5128391	4
57	8·4848435	8·4889646	8·4930471	8·4970915	8·5010988	8·5050695	8·5090042	8·5129038	3
58	8·4849125	8·4890330	8·4931148	8·4971586	8·5011653	8·5051353	8·5090695	8·5129685	2
59	8·4849815	8·4891013	8·4931825	8·4972257	8·5012317	8·5052012	8·5091348	8·5130332	1
60	8·4850505	8·4891696	8·4932502	8·4972928	8·5012982	8·5052671	8·5092001	8·5130978	0
″	15′	14′	13′	12′	11′	10′	9′	8′	″

″	52′	53	54′	55′	56′	57′	58′	59′	″
0	8·5128673	8·5167264	8·5205514	8·5243430	8·5281017	8·5318281	8·5355228	8·5391863	60
1	8·5129319	8·5167904	8·5206148	8·5244059	8·5281641	8·5318900	8·5355842	8·5392471	59
2	8·5129965	8·5168544	8·5206783	8·5244688	8·5282264	8·5319518	8·5356455	8·5393079	58
3	8·5130611	8·5169184	8·5207417	8·5245317	8·5282888	8·5320136	8·5357068	8·5393687	57
4	8·5131256	8·5169824	8·5208052	8·5245946	8·5283511	8·5320754	8·5357680	8·5394295	56
5	8·5131902	8·5170464	8·5208686	8·5246574	8·5284135	8·5321372	8·5358293	8·5394902	55
6	8·5132548	8·5171104	8·5209320	8·5247203	8·5284758	8·5321990	8·5358906	8·5395510	54
7	8·5133193	8·5171743	8·5209954	8·5247832	8·5285381	8·5322608	8·5359518	8·5396117	53
8	8·5133838	8·5172383	8·5210588	8·5248460	8·5286004	8·5323226	8·5360131	8·5396725	52
9	8·5134484	8·5173023	8·5211222	8·5249088	8·5286627	8·5323844	8·5360743	8·5397332	51
10	8·5135129	8·5173662	8·5211856	8·5249717	8·5287250	8·5324461	8·5361356	8·5397939	50
11	8·5135774	8·5174301	8·5212490	8·5250345	8·5287873	8·5325079	8·5361968	8·5398546	49
12	8·5136419	8·5174941	8·5213123	8·5250973	8·5288495	8·5325696	8·5362580	8·5399153	48
13	8·5137064	8·5175580	8·5213757	8·5251601	8·5289118	8·5326314	8·5363192	8·5399760	47
14	8·5137708	8·5176219	8·5214390	8·5252229	8·5289741	8·5326931	8·5363804	8·5400367	46
15	8·5138353	8·5176858	8·5215024	8·5252857	8·5290363	8·5327548	8·5364416	8·5400974	45
16	8·5138997	8·5177497	8·5215657	8·5253485	8·5290985	8·5328165	8·5365028	8·5401581	44
17	8·5139642	8·5178135	8·5216290	8·5254112	8·5291608	8·5328782	8·5365640	8·5402187	43
18	8·5140286	8·5178774	8·5216923	8·5254740	8·5292230	8·5329399	8·5366251	8·5402794	42
19	8·5140931	8·5179413	8·5217556	8·5255367	8·5292852	8·5330015	8·5366863	8·5403400	41
20	8·5141575	8·5180051	8·5218189	8·5255995	8·5293474	8·5330632	8·5367474	8·5404007	40
21	8·5142219	8·5180689	8·5218822	8·5256622	8·5294096	8·5331249	8·5368086	8·5404613	39
22	8·5142863	8·5181328	8·5219455	8·5257249	8·5294718	8·5331865	8·5368697	8·5405219	38
23	8·5143507	8·5181966	8·5220087	8·5257877	8·5295339	8·5332482	8·5369308	8·5405825	37
24	8·5144150	8·5182604	8·5220720	8·5258504	8·5295961	8·5333098	8·5369920	8·5406431	36
25	8·5144794	8·5183242	8·5221352	8·5259131	8·5296583	8·5333714	8·5370531	8·5407037	35
26	8·5145438	8·5183880	8·5221985	8·5259757	8·5297204	8·5334330	8·5371142	8·5407643	34
27	8·5146081	8·5184518	8·5222617	8·5260384	8·5297826	8·5334946	8·5371752	8·5408249	33
28	8·5146725	8·5185156	8·5223249	8·5261011	8·5298447	8·5335562	8·5372363	8·5408854	32
29	8·5147368	8·5185794	8·5223881	8·5261637	8·5299068	8·5336178	8·5372974	8·5409460	31
30	8·5148011	8·5186431	8·5224513	8·5262264	8·5299689	8·5336794	8·5373585	8·5410066	30
31	8·5148654	8·5187068	8·5225145	8·5262890	8·5300310	8·5337410	8·5374195	8·5410671	29
32	8·5149297	8·5187706	8·5225777	8·5263517	8·5300931	8·5338026	8·5374806	8·5411276	28
33	8·5149940	8·5188343	8·5226408	8·5264143	8·5301552	8·5338641	8·5375416	8·5411882	27
34	8·5150583	8·5188980	8·5227040	8·5264769	8·5302173	8·5339257	8·5376026	8·5412487	26
35	8·5151226	8·5189617	8·5227672	8·5265395	8·5302793	8·5339872	8·5376636	8·5413092	25
36	8·5151869	8·5190254	8·5228303	8·5266021	8·5303414	8·5340487	8·5377247	8·5413697	24
37	8·5152511	8·5190891	8·5228934	8·5266647	8·5304034	8·5341103	8·5377857	8·5414302	23
38	8·5153154	8·5191528	8·5229566	8·5267273	8·5304655	8·5341718	8·5378466	8·5414907	22
39	8·5153796	8·5192164	8·5230197	8·5267898	8·5305275	8·5342333	8·5379076	8·5415511	21
40	8·5154438	8·5192801	8·5230828	8·5268524	8·5305895	8·5342948	8·5379686	8·5416116	20
41	8·5155080	8·5193438	8·5231459	8·5269149	8·5306516	8·5343563	8·5380296	8·5416721	19
42	8·5155722	8·5194074	8·5232090	8·5269775	8·5307136	8·5344177	8·5380905	8·5417325	18
43	8·5156364	8·5194710	8·5232720	8·5270400	8·5307756	8·5344792	8·5381515	8·5417929	17
44	8·5157006	8·5195347	8·5233351	8·5271025	8·5308375	8·5345407	8·5382124	8·5418534	16
45	8·5157648	8·5195983	8·5233982	8·5271651	8·5308995	8·5346021	8·5382734	8·5419138	15
46	8·5158290	8·5196619	8·5234612	8·5272276	8·5309615	8·5346636	8·5383343	8·5419742	14
47	8·5158931	8·5197255	8·5235243	8·5272901	8·5310235	8·5347250	8·5383952	8·5420346	13
48	8·5159573	8·5197891	8·5235873	8·5273525	8·5310854	8·5347864	8·5384561	8·5420950	12
49	8·5160214	8·5198526	8·5236503	8·5274150	8·5311473	8·5348478	8·5385170	8·5421554	11
50	8·5160856	8·5199162	8·5237133	8·5274775	8·5312093	8·5349092	8·5385779	8·5422158	10
51	8·5161497	8·5199798	8·5237763	8·5275400	8·5312712	8·5349706	8·5386388	8·5422762	9
52	8·5162138	8·5200433	8·5238394	8·5276024	8·5313331	8·5350320	8·5386997	[illegible]	8
53	8·5162779	8·5201069	8·5239023	8·5276648	8·5313950	8·5350934	8·5387605	[illegible]	7
54	8·5163420	8·5201704	8·5239653	8·5277273	8·5314569	8·5351548	8·5388214	[illegible]	6
55	8·5164061	8·5202339	8·5240283	8·5277897	8·5315188	8·5352161	8·5388822	[illegible]	5
56	8·5164701	8·5202974	8·5240912	8·5278521	8·5315807	8·5352775	8·5389431	[illegible]	4
57	8·5165342	8·5203609	8·5241542	8·5279145	8·5316426	8·5353389	[illegible]	[illegible]	3
58	8·5165983	8·5204244	8·5242171	8·5279769	8·5317044	8·5354002	8·5390647	[illegible]	2
59	8·5166623	8·5204879	8·5242800	8·5280394	8·5317663	8·535461	8·5391255	[illegible]	1
60	8·5167264	8·5205514	8·5243430	8·5281017	8·5318281	8·5355228	8·5391863	[illegible]	0
″	7′	6′	5	4′	3′	2′	1′	0′	″

″	52′	53′	54′	55′	56′	57′	58′	59′	″
0	8·5130978	8·5169610	8·5207902	8·5245860	8·5283490	8·5320797	8·5357787	8·5394466	60
1	8·5131625	8·5170251	8·5208537	8·5246490	8·5284114	8·5321416	8·5358401	8·5395075	59
2	8·5132272	8·5170892	8·5209173	8·5247120	8·5284739	8·5322035	8·5359014	8·5395684	58
3	8·5132918	8·5171533	8·5209808	8·5247749	8·5285363	8·5322654	8·5359628	8·5396292	57
4	8·5133564	8·5172173	8·5210443	8·5248379	8·5285987	8·5323273	8·5360242	8·5396900	56
5	8·5134211	8·5172814	8·5211078	8·5249008	8·5286611	8·5323892	8·5360855	8·5397509	55
6	8·5134857	8·5173455	8·5211713	8·5249638	8·5287235	8·5324510	8·5361469	8·5398117	54
7	8·5135503	8·5174095	8·5212348	8·5250267	8·5287859	8·5325129	8·5362082	8·5398725	53
8	8·5136149	8·5174735	8·5212982	8·5250896	8·5288483	8·5325747	8·5362695	8·5399333	52
9	8·5136795	8·5175375	8·5213617	8·5251525	8·5289106	8·5326366	8·5363309	8·5399941	51
10	8·5137441	8·5176016	8·5214251	8·5252154	8·5289730	8·5326984	8·5363922	8·5400549	50
11	8·5138087	8·5176656	8·5214886	8·5252783	8·5290353	8·5327602	8·5364535	8·5401157	49
12	8·5138732	8·5177296	8·5215520	8·5253412	8·5290977	8·5328220	8·5365148	8·5401765	48
13	8·5139378	8·5177935	8·5216154	8·5254041	8·5291600	8·5328838	8·5365761	8·5402372	47
14	8·5140023	8·5178575	8·5216789	8·5254669	8·5292223	8·5329456	8·5366373	8·5402980	46
15	8·5140668	8·5179215	8·5217423	8·5255298	8·5292847	8·5330074	8·5366986	8·5403587	45
16	8·5141314	8·5179854	8·5218057	8·5255926	8·5293470	8·5330692	8·5367599	8·5404195	44
17	8·5141959	8·5180494	8·5218690	8·5256555	8·5294093	8·5331310	8·5368211	8·5404802	43
18	8·5142604	8·5181133	8·5219324	8·5257183	8·5294716	8·5331927	8·5368824	8·5405409	42
19	8·5143249	8·5181772	8·5219958	8·5257811	8·5295338	8·5332545	8·5369436	8·5406017	41
20	8·5143894	8·5182412	8·5220591	8·5258439	8·5295961	8·5333162	8·5370048	8·5406624	40
21	8·5144539	8·5183051	8·5221225	8·5259067	8·5296584	8·5333779	8·5370660	8·5407231	39
22	8·5145183	8·5183690	8·5221858	8·5259695	8·5297206	8·5334397	8·5371272	8·5407838	38
23	8·5145828	8·5184329	8·5222492	8·5260323	8·5297829	8·5335014	8·5371884	8·5408445	37
24	8·5146472	8·5184967	8·5223125	8·5260951	8·5298451	8·5335631	8·5372496	8·5409051	36
25	8·5147117	8·5185606	8·5223758	8·5261579	8·5299073	8·5336248	8·5373108	8·5409658	35
26	8·5147761	8·5186245	8·5224391	8·5262206	8·5299696	8·5336865	8·5373719	8·5410264	34
27	8·5148405	8·5186883	8·5225024	8·5262834	8·5300318	8·5337482	8·5374331	8·5410871	33
28	8·5149049	8·5187522	8·5225657	8·5263461	8·5300940	8·5338098	8·5374942	8·5411477	32
29	8·5149693	8·5188160	8·5226290	8·5264088	8·5301562	8·5338715	8·5375554	8·5412084	31
30	8·5150337	8·5188798	8·5226922	8·5264716	8·5302183	8·5339331	8·5376165	8·5412690	30
31	8·5150981	8·5189436	8·5227555	8·5265343	8·5302805	8·5339948	8·5376777	8·5413296	29
32	8·5151625	8·5190074	8·5228187	8·5265970	8·5303427	8·5340564	8·5377388	8·5413902	28
33	8·5152268	8·5190712	8·5228820	8·5266597	8·5304048	8·5341181	8·5377999	8·5414508	27
34	8·5152912	8·5191350	8·5229452	8·5267223	8·5304670	8·5341797	8·5378610	8·5415114	26
35	8·5153555	8·5191988	8·5230084	8·5267850	8·5305291	8·5342413	8·5379221	8·5415720	25
36	8·5154199	8·5192626	8·5230717	8·5268477	8·5305912	8·5343029	8·5379832	8·5416326	24
37	8·5154842	8·5193263	8·5231349	8·5269103	8·5306534	8·5343645	8·5380442	8·5416931	23
38	8·5155485	8·5193901	8·5231980	8·5269730	8·5307155	8·5344261	8·5381053	8·5417537	22
39	8·5156128	8·5194538	8·5232612	8·5270356	8·5307776	8·5344876	8·5381664	8·5418142	21
40	8·5156771	8·5195175	8·5233244	8·5270983	8·5308397	8·5345492	8·5382274	8·5418748	20
41	8·5157414	8·5195813	8·5233876	8·5271609	8·5309018	8·5346108	8·5382884	8·5419353	19
42	8·5158057	8·5196450	8·5234507	8·5272235	8·5309638	8·5346723	8·5383495	8·5419958	18
43	8·5158699	8·5197087	8·5235139	8·5272861	8·5310259	8·5347339	8·5384105	8·5420563	17
44	8·5159342	8·5197724	8·5235770	8·5273487	8·5310880	8·5347954	8·5384715	8·5421168	16
45	8·5159984	8·5198361	8·5236401	8·5274113	8·5311500	8·5348569	8·5385325	8·5421773	15
46	8·5160627	8·5198997	8·5237033	8·5274739	8·5312121	8·5349184	8·5385935	8·5422378	14
47	8·5161269	8·5199634	8·5237664	8·5275364	8·5312741	8·5349799	8·5386545	8·5422983	13
48	8·5161911	8·5200271	8·5238295	8·5275990	8·5313361	8·5350414	8·5387155	8·5423588	12
49	8·5162553	8·5200907	8·5238926	8·5276615	8·5313981	8·5351029	8·5387765	8·5424193	11
50	8·5163195	8·5201543	8·5239557	8·5277241	8·5314601	8·5351644	8·5388374	8·5424797	10
51	8·5163837	8·5202180	8·5240187	8·5277866	8·5315221	8·5352259	8·5388984	8·5425402	9
52	8·5164479	8·5202816	8·5240818	8·5278491	8·5315841	8·5352873	8·5389593	8·5426006	8
53	8·5165121	8·5203452	8·5241449	8·5279116	8·5316461	8·5353488	8·5390203	8·5426610	7
54	8·5165762	8·5204088	8·5242079	8·5279741	8·5317081	8·5354102	8·5390812	8·5427214	6
55	8·5166404	8·5204724	8·5242709	8·5280366	8·5317700	8·5354717	8·5391421	8·5427819	5
56	8·5167045	8·5205360	8·5243340	8·5280991	8·5318320	8·5355331	8·5392030	8·5428423	4
57	8·5167687	8·5205995	8·5243970	8·5281616	8·5318939	8·5355945	8·5392639	8·5429027	3
58	8·5168328	8·5206631	8·5244600	8·5282241	8·5319559	8·5356559	8·5393248	8·5429631	2
59	8·5168969	8·5207267	8·5245230	8·5282865	8·5320178	8·5357173	8·5393857	8·5430234	1
60	8·5169610	8·5207902	8·5245860	8·5283490	8·5320797	8·5357787	8·5394466	8·5430838	0
″	7′	6′	5′	4′	3′	2′	1′	0′	″

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	D	Cosine	′
0	0000000	2909	1·000000	Infinite	0000000	Infinite	1·0000000	0000000	0	1·000000	60
1	0002909	2909	9997091	3437·7468	0002909	3437·7467	1·0000000	0000000		1·000000	59
2	0005818	2909	9994182	1718·8735	0005818	1718·8732	1·0000002	0000002	2	9999998	58
3	0008727	2909	9991273	1145·9157	0008727	1145·9153	1·0000004	0000004		[illegible]	57
4	0011636	2908	9988364	859·4368	0011636	859·436[illegible]	1·0000007	0000007	4	[illegible]	56
5	0014544	2909	9985456	687·54960	0014544	687·54887	1·0000011	0000011	4	9999989	55
6	0017453	2909	9982547	572·95809	0017453	572·95721	1·0000015	0000015	6	[illegible]	54
7	0020362	2909	9979638	491·10702	0020362	491·10600	1·0000021	0000021	6	9999979	53
8	0023271	2909	9976729	429·71873	0023271	429·71757	1·0000027	0000027	7	[illegible]	52
9	0026180	2909	9973820	381·97230	0026180	381·97099	1·0000034	0000034	8	9999966	51
10	0029089	2909	9970911	343·77516	0029089	343·77371	1·0000042	0000042	9	[illegible]	50
11	0031998	2909	9968002	312·52297	0031998	312·52137	1·0000051	0000051	10	9999949	49
12	0034907	2908	9965093	286·47948	0034907	286·47773	1·0000061	0000061	11	[illegible]	48
13	0037815	2909	9962185	264·44269	0037816	264·44080	1·0000072	0000072	11	[illegible]	47
14	0040724	2909	9959276	245·55402	0040725	245·55198	1·0000083	0000083	12	[illegible]	46
15	0043633	2909	9956367	229·18385	0043634	229·18166	1·0000095	0000095	13	[illegible]	45
16	0046542	2909	9953458	214·85995	0046542	214·85762	1·0000108	0000108	14	[illegible]	44
17	0049451	2909	9950549	202·22122	0049451	202·21875	1·0000122	0000122	15	[illegible]	43
18	0052360	2908	9947640	190·98680	0052360	190·98419	1·0000137	0000137	16	[illegible]	42
19	0055268	2909	9944732	180·93496	0055269	180·93220	1·0000153	0000153	16	9999847	41
20	0058177	2909	9941823	171·88831	0058178	171·88540	1·0000169	0000169	17	9999831	40
21	0061086	2909	9938914	163·7012[illegible]	0061087	163·70019	1·0000187	0000187	18	[illegible]	39
22	0063995	2909	9936005	[illegible]6·2622[illegible]	006[illegible]	156·25908	1·0000205	0000205	19	[illegible]	38
23	0066904	2909	99[illegible]096	149·46837	0066905	149·46502	1·0000224	0000224	20	[illegible]	37
24	0069813	2908	9930187	143·24061	0069814	143·23712	1·0000244	0000244	20	[illegible]	36
25	0072721	2909	99[illegible]7279	137·51108	0072723	137·50745	1·0000264	0000264		[illegible]	35
26	0075630	2909	9924370	132·2222[illegible]	007[illegible]632	132·21851	1·0000286	00002[illegible]	22	[illegible]	34
27	0078539	2909	9921461	127·3252[illegible]	0078541	127·32134	1·0000308	[illegible]		[illegible]	33
28	0081448	2909	[illegible]	122·77[illegible]	00814[illegible]	122·77396	1·000033[illegible]	000033[illegible]	24	[illegible]	32
29	00843[illegible]	2908	991[illegible]643	118·54440	00843[illegible]	118·54018	1·0000356	00003[illegible]		[illegible]	31
30	00872[illegible]	2909	9912[illegible]35	114·59301	0087269	114·58865	1·0000381	0000381	26	[illegible]	30
31	0090174	2909	9909826	110·89656	0090178	110·89205	1·0000407	0000407	26	[illegible]	29
32	009[illegible]	2909	99069[illegible]	107·43114	009[illegible]087	107·42648	1·0000433	0000433	26	[illegible]	28
33	0095992	[illegible]	9904008	10[illegible]	0095996	104·17094	1·0000461	0000461		[illegible]	27
34	0098900	2909	9901100	101·11185	0098905	101·10690	1·0000489	0000489	29	[illegible]	26
35	0101809	2909	98[illegible]191	98·22[illegible]	0101814	98·217941	1·0000518	0000518	30	[illegible]	25
36	0104718	2909	989[illegible]	[illegible]49471[illegible]	0104724	95·489475	1·0000548	0000548	31	[illegible]	24
37	0107627	2908	[illegible]37[illegible]	[illegible]	0107633	92·908487	1·0000579	0000579		[illegible]	23
38	0110535	2909	[illegible]	[illegible]	0110542	90·46333[illegible]	1·000061[illegible]	0000611	32	[illegible]	22
39	011[illegible]444	2909	[illegible]	[illegible]19244	01134[illegible]	88·1[illegible]57[illegible]	1·0000644	00006[illegible]	34	[illegible]	21
40	0116[illegible]	[illegible]	9883647	[illegible]·94560[illegible]	0116361	[illegible]5·539791	1·00006[illegible]	[illegible]		[illegible]	20
41	0119261	2909	9880739	83·849470	0119270	83·843507	1·0000711	0000711	35	[illegible]	19
42	0122170	2909	[illegible]7830	81·8[illegible]3150	0122179	81·847041	1·0000746	0000746		[illegible]	18
43	0125079	[illegible]	[illegible]74921	79·943684	012[illegible]088	79·9434[illegible]0	1·00007[illegible]	[illegible]78[illegible]		[illegible]	17
44	01[illegible]987	2908	[illegible]87201[illegible]	78·1[illegible]271[illegible]	0127998	78·1[illegible]112	1·0000819	000[illegible]819		[illegible]	16
45	013[illegible]	2909	[illegible]9104	76·39655[illegible]	0130907	76·390009	1·000085[illegible]	000085[illegible]	38	[illegible]	15
46	01[illegible]	2908	[illegible]	7[illegible]	0133817	7[illegible]·7[illegible]65	1·000089[illegible]	00008[illegible]		[illegible]	14
47	013[illegible]	2908	[illegible]63287	73·14[illegible]227	01[illegible]726	73·1[illegible]491	1·00009[illegible]	[illegible]		[illegible]	13
48	0139[illegible]	2908	[illegible]0378	71·6[illegible]205	[illegible]39635	71·615070	1·000097[illegible]	0000973	41	[illegible]	12
49	0142530	2909	[illegible]7470	70·[illegible]0474	0142541	70·15[illegible]46	1·0001016	0001016	42	[illegible]	11
50	0145439	2908	[illegible]61	68·7[illegible]	01454[illegible]	68·7[illegible]87	1·00010[illegible]	00010[illegible]	42	[illegible]	10
51	0148[illegible]	2908	[illegible]5162[illegible]	67·4092[illegible]	[illegible]483[illegible]	67·401[illegible]	1·00011[illegible]	00011[illegible]		[illegible]	9
52	01512[illegible]	2909	[illegible]744	6[illegible]·11[illegible]	015127[illegible]	6[illegible]·1[illegible]	1·000114[illegible]	00011[illegible]	44	[illegible]	8
53	0154[illegible]	2908	[illegible]	64·86[illegible]710	0154184	64·8[illegible]008	1·0001[illegible]	0001[illegible]		[illegible]	7
54	01[illegible]707[illegible]	2908	984[illegible]	6[illegible]·[illegible]6459[illegible]	015709[illegible]	6[illegible]·6[illegible]741	1·0001234	000[illegible]234	46	[illegible]	6
55	01[illegible]982	29[illegible]	98401[illegible]	6[illegible]·507153	0160002	62·4991[illegible]4	1·0001[illegible]	[illegible]		[illegible]	5
56	016[illegible]890	2909	[illegible]711[illegible]	61·[illegible]91050	0162912	61·38[illegible]905	1·0001[illegible]27	0001[illegible]	47	[illegible]	4
57	01[illegible]	2908	983[illegible]	60·[illegible]4110	016[illegible]	60·[illegible]820	1·0001[illegible]	0001[illegible]		[illegible]	3
58	0168707	2909	98[illegible]	[illegible]·2[illegible]	0168[illegible]	59·265872	1·00014[illegible]	[illegible]		[illegible]	2
59	017[illegible]	2908	98[illegible]384	[illegible]90755	[illegible]71641	58·261174	1·0001[illegible]	[illegible]		[illegible]	1
60	0174524		9825476	57·298688	01745[illegible]	57·289962	1·0001[illegible]	[illegible]		[illegible]	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Cover	D	Sine	′

′	Sine	Diff.	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant	D	Cosine	′
0	8·2418553	71779	11·7581447	6·1827137	8·2419215	71800	11·7580785	9·9923536	10·0000662	22	9·9999338	60
1	8·2490332	70611	11·7509668	6·1970705	8·2491015	70634	11·7508985	9·9922250	10·0000684	22	9·9999316	59
2	8·2560943	69481	11·7439057	6·2111938	8·2561649	69504	11·7438351	9·9920964	10·0000706	23	9·9999294	58
3	8·2630424	68386	11·7369576	6·2250912	8·2631153	68410	11·7368847	9·9919678	10·0000729	24	9·9999271	57
4	8·2698810	67326	11·7301190	6·2387696	8·2699563	67349	11·7300437	9·9918391	10·0000753	23	9·9999247	56
5	8·2766136	66298	11·7233864	6·2522360	8·2766912	66322	11·7233088	9·9917104	10·0000776	24	9·9999224	55
6	8·2832434	65300	11·7167566	6·2654968	8·2833234	65325	11·7166766	9·9915816	10·0000800	25	9·9999200	54
7	8·2897734	64333	11·7102266	6·2785581	8·2898559	64358	11·7101441	9·9914528	10·0000825	25	9·9999175	53
8	8·2962067	63393	11·7037933	6·2914259	8·2962917	63418	11·7037083	9·9913240	10·0000850	25	9·9999150	52
9	8·3025460	62481	11·6974540	6·3041058	8·3026335	62507	11·6973665	9·9911951	10·0000875	25	9·9999125	51
10	8·3087941	61595	11·6912059	6·3166033	8·3088842	61620	11·6911158	9·9910662	10·0000900	26	9·9999100	50
11	8·3149536	60733	11·6850464	6·3289235	8·3150462	60759	11·6849538	9·9909372	10·0000926	27	9·9999074	49
12	8·3210269	59894	11·6789731	6·3410714	8·3211221	59922	11·6788779	9·9908082	10·0000953	26	9·9999047	48
13	8·3270163	59080	11·6729837	6·3530516	8·3271143	59106	11·6728857	9·9906792	10·0000979	27	9·9999021	47
14	8·3329243	58286	11·6670757	6·3648689	8·3330249	58314	11·6669751	9·9905501	10·0001006	28	9·9998994	46
15	8·3387529	57514	11·6612471	6·3765275	8·3388563	57542	11·6611437	9·9904210	10·0001034	27	9·9998966	45
16	8·3445043	56762	11·6554957	6·3880317	8·3446105	56790	11·6553895	9·9902919	10·0001061	28	9·9998939	44
17	8·3501805	56030	11·6498195	6·3993855	8·3502895	56058	11·6497105	9·9901627	10·0001089	29	9·9998911	43
18	8·3557835	55315	11·6442165	6·4105928	8·3558953	55344	11·6441047	9·9900335	10·0001118	29	9·9998882	42
19	8·3613150	54619	11·6386850	6·4216573	8·3614297	54648	11·6385703	9·9899043	10·0001147	29	9·9998853	41
20	8·3667769	53941	11·6332231	6·4325826	8·3668945	53970	11·6331055	9·9897750	10·0001176	30	9·9998824	40
21	8·3721710	53278	11·6278290	6·4433722	8·3722915	53308	11·6277085	9·9896457	10·0001206	30	9·9998794	39
22	8·3774988	52632	11·6225012	6·4540294	8·3776223	52663	11·6223777	9·9895163	10·0001236	30	9·9998764	38
23	8·3827620	52002	11·6172380	6·4645573	8·3828886	52032	11·6171114	9·9893869	10·0001266	31	9·9998734	37
24	8·3879622	51386	11·6120378	6·4749592	8·3880918	51418	11·6119082	9·9892575	10·0001297	31	9·9998703	36
25	8·3931008	50785	11·6068992	6·4852380	8·3932336	50816	11·6067664	9·9891280	10·0001328	31	9·9998672	35
26	8·3981793	50197	11·6018207	6·4953965	8·3983152	50229	11·6016848	9·9889985	10·0001359	32	9·9998641	34
27	8·4031990	49624	11·5968010	6·5054376	8·4033381	49656	11·5966619	9·9888689	10·0001391	32	9·9998609	33
28	8·4081614	49062	11·5918386	6·5153639	8·4083037	49095	11·5916963	9·9887393	10·0001423	33	9·9998577	32
29	8·4130676	48514	11·5869324	6·5251780	8·4132132	48547	11·5867868	9·9886097	10·0001456	32	9·9998544	31
30	8·4179190	47978	11·5820810	6·5348825	8·4180679	48011	11·5819321	9·9884801	10·0001488	34	9·9998512	30
31	8·4227168	47453	11·5772832	6·5444797	8·4228690	47486	11·5771310	9·9883503	10·0001522	33	9·9998478	29
32	8·4274621	46940	11·5725379	6·5539720	8·4276176	46974	11·5723824	9·9882206	10·0001555	34	9·9998445	28
33	8·4321561	46438	11·5678439	6·5633616	8·4323150	46472	11·5676850	9·9880908	10·0001589	35	9·9998411	27
34	8·4367999	45945	11·5632001	6·5726509	8·4369622	45981	11·5630378	9·9879610	10·0001624	34	9·9998376	26
35	8·4413944	45465	11·5586056	6·5818418	8·4415603	45500	11·5584397	9·9878312	10·0001658	36	9·9998342	25
36	8·4459409	44993	11·5540591	6·5909365	8·4461103	45028	11·5538897	9·9877013	10·0001694	35	9·9998306	24
37	8·4504402	44532	11·5495598	6·5999369	8·4506131	44568	11·5493869	9·9875713	10·0001729	36	9·9998271	23
38	8·4548934	44079	11·5451066	6·6088450	8·4550699	44115	11·5449301	9·9874414	10·0001765	36	9·9998235	22
39	8·4593013	43636	11·5406987	6·6176626	8·4594814	48672	11·5405186	9·9873114	10·0001801	37	9·9998199	21
40	8·4636649	43201	11·5363351	6·6263916	8·4638486	43239	11·5361514	9·9871813	10·0001838	37	9·9998162	20
41	8·4679850	42776	11·5320150	6·6350337	8·4681725	42813	11·5318275	9·9870513	10·0001875	37	9·9998125	19
42	8·4722626	42358	11·5277374	6·6435907	8·4724538	42395	11·5275462	9·9869211	10·0001912	38	9·9998088	18
43	8·4764984	41948	11·5235016	6·6520642	8·4766933	41987	11·5233067	9·9867910	10·0001950	38	9·9998050	17
44	8·4806932	41547	11·5193068	6·6604558	8·4808920	41585	11·5191080	9·9866608	10·0001988	38	9·9998012	16
45	8·4848479	41153	11·5151521	6·6687671	8·4850505	41191	11·5149495	9·9865306	10·0002026	39	9·9997974	15
46	8·4889632	40766	11·5110368	6·6769996	8·4891696	40806	11·5108304	9·9864003	10·0002065	39	9·9997935	14
47	8·4930398	40386	11·5069602	6·6851547	8·4932502	40426	11·5067498	9·9862700	10·0002104	40	9·9997896	13
48	8·4970784	40014	11·5029216	6·6932340	8·4972928	40054	11·5027072	9·9861396	10·0002144	39	9·9997856	12
49	8·5010798	39649	11·4989202	6·7012389	8·5012982	39689	11·4987018	9·9860093	10·0002183	41	9·9997817	11
50	8·5050447	39289	11·4949553	6·7091706	8·5052671	39330	11·4947329	9·9858789	10·0002224	40	9·9997776	10
51	8·5089736	38937	11·4910264	6·7170305	8·5092001	38977	11·4907999	9·9857484	10·0002264	41	9·9997736	9
52	8·5128673	38591	11·4871327	6·7248199	8·5130978	38632	11·4869022	9·9856179	10·0002305	42	9·9997695	8
53	8·5167264	38250	11·4832736	6·7325400	8·5169610	38292	11·4830390	9·9854873	10·0002347	41	9·9997653	7
54	8·5205514	37916	11·4794486	6·7401921	8·5207902	37958	11·4792098	9·9853568	10·0002388	42	9·9997612	6
55	8·5243430	37587	11·4756570	6·7477774	8·5245860	37630	11·4754140	9·9852262	10·0002430	43	9·9997570	5
56	8·5281017	37264	11·4718983	6·7552970	8·5283490	37307	11·4716510	9·9850955	10·0002473	43	9·9997527	4
57	8·5318281	36947	11·4681719	6·7627520	8·5320797	36990	11·4679203	9·9849648	10·0002516	43	9·9997484	3
58	8·5355228	36635	11·4644772	6·7701436	8·5357787	36679	11·4642213	9·9848341	10·0002559	43	9·9997441	2
59	8·5391863	36329	11·4608137	6·7774728	8·5394466	36372	11·4605534	9·9847033	10·0002602	44	9·9997398	1
60	8·5428192		11·4571808	6·7847406	8·5430838		11·4569162	9·9845725	10·0002646		9·9997354	0
′	Cosine	Diff.	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D	Sine	′

'	Sine	Dif	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	D	Cosine	'
0	0174524	2908	9825476	57·298688	0174551	57·289962	1·0001523	0001523	51	9998477	60
1	0177432	2909	9822568	56·359462	0177460	56·350590	1·0001574	0001574	52	9998426	59
2	0180341	2908	9819659	55·450534	0180370	55·441517	1·0001627	0001626	53	9998374	58
3	0183249	2909	9816751	54·570464	0183280	54·561300	1·0001679	0001679	54	9998321	57
4	0186158	2908	9813842	53·717896	0186190	53·708587	1·0001733	0001733	54	9998267	56
5	0189066	2908	9810934	52·891564	0189100	52·882109	1·0001788	0001787	56	9998213	55
6	0191974	2909	9808026	52·090272	0192010	52·080673	1·0001843	0001843	56	9998157	54
7	0194883	2908	9805117	51·312902	0194920	51·303157	1·0001900	0001899	57	9998101	53
8	0197791	2908	9802209	50·558396	0197830	50·548506	1·0001957	0001956	58	9998044	52
9	0200699	2909	9799301	49·825762	0200740	49·815726	1·0002015	0002014	59	9997986	51
10	0203608	2908	9796392	49·114062	0203650	49·103881	1·0002073	0002073	60	9997927	50
11	0206516	2908	9793484	48·422411	0206560	48·412084	1·0002133	0002133	60	9997867	49
12	0209424	2908	9790576	47·749974	0209470	47·739501	1·0002194	0002193	62	9997807	48
13	0212332	2909	9787668	47·095961	0212380	47·085343	1·0002255	0002255	62	9997745	47
14	0215241	2908	9784759	46·459625	0215291	46·448862	1·0002317	0002317	63	9997683	46
15	0218149	2908	9781851	45·840260	0218201	45·829351	1·0002380	0002380	64	9997620	45
16	0221057	2908	9778943	45·237195	0221111	45·226141	1·0002444	0002444	64	9997556	44
17	0223965	2908	9776035	44·649795	0224021	44·638596	1·0002509	0002508	66	9997492	43
18	0226873	2908	9773127	44·077458	0226932	44·066113	1·0002575	0002574	66	9997426	42
19	0229781	2909	9770219	43·519612	0229842	43·508122	1·0002641	0002640	68	9997360	41
20	0232690	2908	9767310	42·975713	0232753	42·964077	1·0002708	0002708	68	9997292	40
21	0235598	2908	9764402	42·445245	0235663	42·433464	1·0002776	0002776	68	9997224	39
22	0238506	2908	9761494	41·927717	0238574	41·915790	1·0002845	0002844	70	9997156	38
23	0241414	2909	9758586	41·422660	0241484	41·410588	1·0002915	0002914	71	9997086	37
24	0244322	2908	9755678	40·929630	0244395	40·917412	1·0002986	0002985	72	9997015	36
25	0247230	2908	9752770	40·448201	0247305	40·435837	1·0003058	0003057	72	9996943	35
26	0250138	2908	9749862	39·977969	0250216	39·965460	1·0003130	0003129	73	9996871	34
27	0253046	2908	9746954	39·518549	0253127	39·505895	1·0003203	0003202	74	9996798	33
28	0255954	2908	9744046	39·069571	0256038	39·056771	1·0003277	0003276	75	9996724	32
29	0258862	2907	9741138	38·630683	0258948	38·617738	1·0003352	0003351	76	9996649	31
30	0261769	2908	9738231	38·201550	0261859	38·188459	1·0003428	0003427	76	9996573	30
31	0264677	2908	9735323	37·781849	0264770	37·768613	1·0003505	0003503	78	9996497	29
32	0267585	2908	9732415	37·371273	0267681	37·357892	1·0003582	0003581	78	9996419	28
33	0270493	2908	9729507	36·969528	0270592	36·956001	1·0003660	0003659	79	9996341	27
34	0273401	2908	9726599	36·576332	0273503	36·562659	1·0003739	0003738	80	9996262	26
35	0276309	2907	9723691	36·191414	0276414	36·177596	1·0003820	0003818	81	9996182	25
36	0279216	2908	9720784	35·814517	0279325	35·800553	1·0003900	0003899	81	9996101	24
37	0282124	2908	9717876	35·445394	0282236	35·431282	1·0003982	0003980	82	9996020	23
38	0285032	2908	9714968	35·083800	0285148	35·069546	1·0004065	0004063	83	9995937	22
39	0287940	2907	9712060	34·729515	0288059	34·715115	1·0004148	0004146	84	9995854	21
40	0290847	2908	9709153	34·382316	0290970	34·367771	1·0004232	0004230	84	9995770	20
41	0293755	2907	9706245	34·041994	0293882	34·027303	1·0004317	0004316	85	9995684	19
42	0296662	2908	9703338	33·708345	0296793	33·693509	1·0004403	0004401	87	9995599	18
43	0299570	2908	9700430	33·381176	0299705	33·366194	1·0004490	0004488	87	9995512	17
44	0302478	2907	9697522	33·060300	0302616	33·045173	1·0004578	0004576	88	9995424	16
45	0305385	2908	9694615	32·745537	0305528	32·730264	1·0004666	0004664	89	9995336	15
46	0308293	2907	9691707	32·436713	0308440	32·421295	1·0004756	0004753	90	9995247	14
47	0311200	2908	9688800	32·133663	0311351	32·118099	1·0004846	0004843	91	9995157	13
48	0314108	2907	9685892	31·836225	0314263	31·820516	1·0004937	0004934	92	9995066	12
49	0317015	2907	9682985	31·544246	0317174	31·528392	1·0005029	0005026	93	9994974	11
50	0319922	2908	9680078	31·257577	0320086	31·241577	1·0005121	0005119	93	9994881	10
51	0322830	2907	9677170	30·976074	0322998	30·959928	1·0005215	0005212	95	9994788	9
52	0325737	2907	9674263	30·699598	0325910	30·683307	1·0005309	0005307	95	9994693	8
53	0328644	2908	9671356	30·428017	0328822	30·411580	1·0005405	0005402	96	9994598	7
54	0331552	2907	9668448	30·161201	0331734	30·144619	1·0005501	0005498	97	9994502	6
55	0334459	2907	9665541	29·899026	0334646	29·882299	1·0005598	0005595	97	9994405	5
56	0337366	2908	9662634	29·641373	0337558	29·624499	1·0005696	0005692	99	9994308	4
57	0340274	2907	9659726	29·388124	0340471	29·371106	1·0005794	0005791	99	9994209	3
58	0343181	2907	9656819	29·139169	0343383	29·122005	1·0005894	0005890	100	9994110	2
59	0346088	2907	9653912	28·894398	0346295	28·877089	1·0005995	0005990	101	9994010	1
60	0348995		9651005	28·653708	0349208	28·636253	1·0006095	0006092		9993908	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D	Sine	'

′	Sine	Diff.	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant.	D	Cosine	′
0	8·5428192	36026	11·4571808	6·7847406	8·5430838	36071	11·4569162	9·9845725	10·0002646	45	9·9997354	60
1	8·5464218	35730	11·4535782	6·7919481	8·5466909	35774	11·4533091	9·9844417	10·0002691	44	9·9997309	59
2	8·5499948	35438	11·4500052	6·7990963	8·5502683	35483	11·4497317	9·9843108	10·0002735	45	9·9997265	58
3	8·5535386	35150	11·4464614	6·8061861	8·5538166	35196	11·4461834	9·9841799	10·0002780	46	9·9997220	57
4	8·5570536	34868	11·4429464	6·8132185	8·5573362	34914	11·4426638	9·9840490	10·0002826	46	9·9997174	56
5	8·5605404	34590	11·4394596	6·8201944	8·5608276	34636	11·4391724	9·9839180	10·0002872	46	9·9997128	55
6	8·5639994	34316	11·4360006	6·8271147	8·5642912	34363	11·4357088	9·9837869	10·0002918	46	9·9997082	54
7	8·5674310	34047	11·4325690	6·8339803	8·5677275	34093	11·4322725	9·9836559	10·0002964	47	9·9997036	53
8	8·5708357	33782	11·4291643	6·8407920	8·5711368	33829	11·4288632	9·9835248	10·0003011	47	9·9996989	52
9	8·5742139	33521	11·4257861	6·8475507	8·5745197	33569	11·4254803	9·9833936	10·0003058	48	9·9996942	51
10	8·5775660	33263	11·4224340	6·8542574	8·5778766	33311	11·4221234	9·9832624	10·0003106	48	9·9996894	50
11	8·5808923	33010	11·4191077	6·8609123	8·5812077	33059	11·4187923	9·9831312	10·0003154	48	9·9996846	49
12	8·5841933	32761	11·4158067	6·8675167	8·5845136	32809	11·4154864	9·9830000	10·0003202	49	9·9996798	48
13	8·5874694	32515	11·4125306	6·8740714	8·5877945	32564	11·4122055	9·9828687	10·0003251	49	9·9996749	47
14	8·5907209	32274	11·4092791	6·8805768	8·5910509	32323	11·4089491	9·9827373	10·0003300	50	9·9996700	46
15	8·5939483	32034	11·4060517	6·8870340	8·5942832	32085	11·4057168	9·9826060	10·0003350	49	9·9996650	45
16	8·5971517	31800	11·4028483	6·8934434	8·5974917	31850	11·4025083	9·9824745	10·0003399	51	9·9996601	44
17	8·6003317	31569	11·3996683	6·8998059	8·6006767	31619	11·3993233	9·9823431	10·0003450	50	9·9996550	43
18	8·6034886	31340	11·3965114	6·9061221	8·6038386	31391	11·3961614	9·9822116	10·0003500	51	9·9996500	42
19	8·6066226	31115	11·3933774	6·9123927	8·6069777	31166	11·3930223	9·9820801	10·0003551	51	9·9996449	41
20	8·6097341	30894	11·3902659	6·9186183	8·6100943	30946	11·3899057	9·9819485	10·0003602	52	9·9996398	40
21	8·6128235	30675	11·3871765	6·9247990	8·6131889	30727	11·3868111	9·9818169	10·0003654	52	9·9996346	39
22	8·6158910	30459	11·3841090	6·9309374	8·6162616	30511	11·3837384	9·9816853	10·0003706	52	9·9996294	38
23	8·6189369	30247	11·3810631	6·9370417	8·6193127	30300	11·3806873	9·9815536	10·0003758	53	9·9996242	37
24	8·6219616	30037	11·3780384	6·9430837	8·6223427	30091	11·3776573	9·9814219	10·0003811	53	9·9996189	36
25	8·6249653	29831	11·3750347	6·9490939	8·6253518	29884	11·3746482	9·9812901	10·0003864	54	9·9996136	35
26	8·6279484	29627	11·3720516	6·9550627	8·6283402	29681	11·3716598	9·9811583	10·0003918	54	9·9996082	34
27	8·6309111	29426	11·3690889	6·9609907	8·6313083	29480	11·3686917	9·9810265	10·0003972	54	9·9996028	33
28	8·6338537	29227	11·3661463	6·9668786	8·6342563	29282	11·3657437	9·9808946	10·0004026	55	9·9995974	32
29	8·6367764	29032	11·3632236	6·9727268	8·6371845	29086	11·3628155	9·9807627	10·0004081	54	9·9995919	31
30	8·6396796	28838	11·3603204	6·9785359	8·6400931	28894	11·3599069	9·9806308	10·0004135	56	9·9995865	30
31	8·6425634	28648	11·3574366	6·9843063	8·6429825	28703	11·3570175	9·9804988	10·0004191	56	9·9995809	29
32	8·6454282	28460	11·3545718	6·9900387	8·6458528	28516	11·3541472	9·9803668	10·0004247	56	9·9995753	28
33	8·6482742	28274	11·3517258	6·9957334	8·6487044	28331	11·3512956	9·9802347	10·0004303	56	9·9995697	27
34	8·6511016	28091	11·3488984	7·0013911	8·6515375	28147	11·3484625	9·9801026	10·0004359	57	9·9995641	26
35	8·6539107	27910	11·3460893	7·0070121	8·6543522	27968	11·3456478	9·9799704	10·0004416	57	9·9995584	25
36	8·6567017	27731	11·3432983	7·0125969	8·6571490	27789	11·3428510	9·9798383	10·0004473	58	9·9995527	24
37	8·6594748	27555	11·3405252	7·0181461	8·6599279	27612	11·3400721	9·9797061	10·0004531	58	9·9995469	23
38	8·6622303	27381	11·3377697	7·0236600	8·6626891	27440	11·3373109	9·9795738	10·0004589	58	9·9995411	22
39	8·6649684	27209	11·3350316	7·0291391	8·6654331	27267	11·3345669	9·9794415	10·0004647	58	9·9995353	21
40	8·6676893	27039	11·3323107	7·0345838	8·6681598	27099	11·3318402	9·9793092	10·0004705	59	9·9995295	20
41	8·6703932	26872	11·3296068	7·0399946	8·6708697	26931	11·3291303	9·9791768	10·0004764	60	9·9995236	19
42	8·6730804	26706	11·3269196	7·0453719	8·6735628	26765	11·3264372	9·9790444	10·0004824	60	9·9995176	18
43	8·6757510	26542	11·3242490	7·0507161	8·6762393	26603	11·3237607	9·9789119	10·0004884	60	9·9995116	17
44	8·6784052	26381	11·3215948	7·0560276	8·6788996	26441	11·3211004	9·9787795	10·0004944	60	9·9995056	16
45	8·6810433	26221	11·3189567	7·0613068	8·6815437	26282	11·3184563	9·9786469	10·0005004	61	9·9994996	15
46	8·6836654	26064	11·3163346	7·0665540	8·6841719	26125	11·3158281	9·9785144	10·0005065	61	9·9994935	14
47	8·6862718	25907	11·3137282	7·0717698	8·6867844	25969	11·3132156	9·9783818	10·0005126	62	9·9994874	13
48	8·6888625	25754	11·3111375	7·0769544	8·6893813	25816	11·3106187	9·9782491	10·0005188	62	9·9994812	12
49	8·6914379	25601	11·3085621	7·0821082	8·6919629	25663	11·3080371	9·9781164	10·0005250	62	9·9994750	11
50	8·6939980	25451	11·3060020	7·0872316	8·6945292	25514	11·3054708	9·9779837	10·0005312	63	9·9994688	10
51	8·6965431	25303	11·3034569	7·0923249	8·6970806	25366	11·3029194	9·9778510	10·0005375	63	9·9994625	9
52	8·6990734	25155	11·3009266	7·0973885	8·6996172	25218	11·3003828	9·9777182	10·0005438	64	9·9994562	8
53	8·7015889	25010	11·2984111	7·1024228	8·7021390	25075	11·2978610	9·9775853	10·0005502	63	9·9994498	7
54	8·7040899	24867	11·2959101	7·1074280	8·7046465	24930	11·2953535	9·9774525	10·0005565	65	9·9994435	6
55	8·7065766	24724	11·2934234	7·1124045	8·7071395	24790	11·2928605	9·9773195	10·0005630	64	9·9994370	5
56	8·7090490	24585	11·2909510	7·1173527	8·7096185	24649	11·2903815	9·9771866	10·0005694	65	9·9994306	4
57	8·7115075	24445	11·2884925	7·1222728	8·7120834	24511	11·2879166	9·9770536	10·0005759	65	9·9994241	3
58	8·7139520	24309	11·2860480	7·1271654	8·7145345	24374	11·2854655	9·9769206	10·0005824	66	9·9994176	2
59	8·7163829	24173	11·2836171	7·1320302	8·7169719	24239	11·2830281	9·9767875	10·0005890	66	9·9994110	1
60	8·7188002		11·2811998	7·1368680	8·7193958		11·2806042	9·9766544	10·0005956		9·9994044	0
′	Cosine	Diff.	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D	Cosine	'
0	0348995	2907	9651005	28·653708	0349208	28·636253	1·0006095	0006092	102	9993908	60
1	0351902	2907	9648098	28·416997	0352120	28·399397	1·0006198	0006194	102	9993806	59
2	0354809	2907	9645191	28·184168	0355033	28·166422	1·0006300	0006296	104	9993703	58
3	0357716	2907	9642284	27·955125	0357945	27·937233	1·0006404	0006400	104	9993600	57
4	0360623	2907	9639377	27·739777	0360858	27·711740	1·0006509	0006505	105	9993496	56
5	0363530	2907	9636470	27·508037	0363771	27·489853	1·0006614	0006610	106	9993391	55
6	0366437	2907	9633563	27·289814	0366685	27·271486	1·0006721	0006716	107	9993284	54
7	0369344	2907	9630656	27·075030	0369596	27·056557	1·0006828	0006823	108	9993177	53
8	0372251	2907	9627749	26·864603	0372509	26·844984	1·0006936	0006931	109	9993069	52
9	0375158	2907	9624842	26·655443	0375422	26·636690	1·0007045	0007040	109	9992960	51
10	0378065	2906	9621935	26·450511	0378335	26·431600	1·0007154	0007149	111	9992851	50
11	0380971	2907	9619029	26·248694	0381248	26·229638	1·0007265	0007260	111	9992740	49
12	0383878	2907	9616122	26·049937	0384161	26·030736	1·0007376	0007371	112	9992629	48
13	0386785	2907	9613215	25·854169	0387074	25·834823	1·0007489	0007483	113	9992517	47
14	0389692	2906	9610308	25·661324	0389988	25·641842	1·0007602	0007596	114	9992404	46
15	0392598	2907	9607402	25·471337	0392901	25·451700	1·0007716	0007710	114	9992290	45
16	0395505	2906	9604495	25·284111	0395814	25·264361	1·0007830	0007824	116	9992176	44
17	0398411	2907	9601589	25·099628	0398728	25·079757	1·0007946	0007940	116	9992060	43
18	0401318	2906	9598682	24·917900	0401641	24·897826	1·0008063	0008056	117	9991944	42
19	0404224	2907	9595776	24·738731	0404555	24·718512	1·0008180	0008173	118	9991827	41
20	0407131	2906	9592869	24·562123	0407469	24·541758	1·0008298	0008291	119	9991709	40
21	0410037	2907	9589963	24·388020	0410383	24·367509	1·0008417	0008410	120	9991590	39
22	0412944	2906	9587056	24·216370	0413296	24·195714	1·0008537	0008530	120	9991470	38
23	0415850	2907	9584150	24·047121	0416210	24·026320	1·0008658	0008650	122	9991350	37
24	0418757	2906	9581243	23·880224	0419124	23·859277	1·0008779	0008772	122	9991228	36
25	0421663	2906	9578337	23·715630	0422038	23·694537	1·0008902	0008894	123	9991106	35
26	0424569	2906	9575431	23·553291	0424952	23·532052	1·0009025	0009017	124	9990983	34
27	0427475	2907	9572525	23·393161	0427866	23·371777	1·0009149	0009141	124	9990859	33
28	0430382	2906	9569618	23·235196	0430781	23·213666	1·0009271	0009266	125	9990734	32
29	0433288	2906	9566712	23·079351	0433695	23·057677	1·0009400	0009391	127	9990609	31
30	0436194	2906	9563806	22·925586	0436609	22·903766	1·0009527	0009518	127	9990482	30
31	0439100	2906	9560900	22·773857	0439524	22·751892	1·0009654	0009645	128	9990355	29
32	0442006	2906	9557994	22·624126	0442438	22·602015	1·0009783	0009773	129	9990227	28
33	0444912	2906	9555088	22·476353	0445353	22·454096	1·0009912	0009902	130	9990098	27
34	0447818	2906	9552182	22·330499	0448268	22·308097	1·0010042	0010032	131	9989968	26
35	0450724	2906	9549276	22·186528	0451183	22·163980	1·0010173	0010163	131	9989837	25
36	0453630	2906	9546370	22·044403	0454097	22·021710	1·0010305	0010294	133	9989706	24
37	0456536	2906	9543464	21·904090	0457012	21·881251	1·0010438	0010427	133	9989573	23
38	0459442	2905	9540558	21·765553	0459927	21·742569	1·0010571	0010560	134	9989440	22
39	0462347	2906	9537653	21·628759	0462842	21·605630	1·0010705	0010694	135	[illegible]	21
40	0465253	2906	9534747	21·493676	0465757	21·470401	1·0010841	0010829	136	[illegible]	20
41	0468159	2906	9531841	21·360272	0468673	21·336851	1·0010977	0010965	136	[illegible]	19
42	0471065	2905	9528935	21·228516	0471588	21·204949	1·0011114	0011101	137	[illegible]	18
43	0473970	2906	9526030	21·098376	0474503	21·071664	1·0011251	0011239	138	[illegible]	17
44	0476876	2905	9523124	20·969824	0477419	20·945966	1·0011390	0011377	139	[illegible]	16
45	0479781	2906	9520219	20·842830	0480334	20·818828	1·0011529	0011516	140	[illegible]	15
46	0482687	2905	9517313	20·717368	0483250	20·693220	1·0011670	0011656	141	[illegible]	14
47	0485592	2906	9514408	20·593409	0486166	20·569115	1·0011811	0011797	142	[illegible]	13
48	0488498	2905	9511502	20·470926	0489082	20·446486	1·0011953	0011939	142	[illegible]	12
49	0491403	2905	9508597	20·349893	0491997	20·325308	1·0012096	0012081	144	[illegible]	11
50	0494308	2906	9505692	20·230284	0494913	20·205553	1·0012239	0012225	144	[illegible]	10
51	0497214	2905	9502786	20·112075	0497829	20·087199	1·0012384	0012369	145	[illegible]	9
52	0500119	2905	9499881	19·995241	0500746	19·970219	1·0012529	0012514	146	[illegible]	8
53	0503024	2905	9496976	19·879758	0503662	19·854591	1·0012676	0012660	146	[illegible]	7
54	0505929	2906	9494071	19·765604	0506578	19·740291	1·0012823	0012806	148	[illegible]	6
55	0508835	2905	9491165	19·652754	0509495	19·627296	1·0012971	0012954	148	[illegible]	5
56	0511740	2905	9488260	19·541187	0512411	19·515584	1·0013120	0013102	149	[illegible]	4
57	0514645	2905	9485355	19·430882	0515328	19·405133	1·0013269	0013252	150	[illegible]	3
58	0517550	2905	9482450	19·321816	0518244	19·295922	1·0013420	0013402	151	[illegible]	2
59	0520455	2905	9479545	19·213970	0521161	19·187930	1·0013571	0013553	152	[illegible]	1
60	0523360		9476640	19·107323	0524078	19·081137	1·0013723	0013705		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D	Sine	'

Sine	Diff.	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant	D	Cosine	′
8·7188002	24038	11·2811998	7·1368700	8·7193958	24105	11·2806042	9·9766544	10·0005956	67	9·9994044	60
8·7212040	23906	11·2787960	7·1416791	8·7218063	23972	11·2781937	9·9765213	10·0006022	67	9·9993978	59
8·7235946	23775	11·2764054	7·1464636	8·7242035	23842	11·2757965	9·9763881	10·0006089	67	9·9993911	58
8·7259721	23645	11·2740279	7·1512219	8·7265877	23712	11·2734123	9·9762549	10·0006156	68	9·9993844	57
8·7283366	23516	11·2716634	7·1559542	8·7289589	23585	11·2710411	9·9761216	10·0006224	68	9·9993776	56
8·7306882	23390	11·2693118	7·1606609	8·7313174	23457	11·2686826	9·9759883	10·0006292	68	9·9993708	55
8·7330272	23263	11·2669728	7·1653422	8·7336631	23333	11·2663369	9·9758550	10·0006360	68	9·9993640	54
8·7353535	23140	11·2646465	7·1699984	8·7359964	23208	11·2640036	9·9757216	10·0006428	69	9·9993572	53
8·7376675	23016	11·2623325	7·1746297	8·7383172	23086	11·2616828	9·9755882	10·0006497	70	9·9993503	52
8·7399691	22895	11·2600309	7·1792365	8·7406258	22964	11·2593742	9·9754547	10·0006567	69	9·9993433	51
8·7422586	22774	11·2577414	7·1838189	8·7429222	22845	11·2570778	9·9753212	10·0006636	71	9·9993364	50
8·7445360	22655	11·2554640	7·1883773	8·7452067	22725	11·2547933	9·9751877	10·0006707	70	9·9993293	49
8·7468015	22538	11·2531985	7·1929118	8·7474792	22608	11·2525208	9·9750541	10·0006777	71	9·9993223	48
8·7490553	22420	11·2509447	7·1974228	8·7497400	22492	11·2502600	9·9749205	10·0006848	71	9·9993152	47
8·7512973	22305	11·2487027	7·2019104	8·7519892	22377	11·2480108	9·9747868	10·0006919	72	9·9993081	46
8·7535278	22191	11·2464722	7·2063750	8·7542269	22262	11·2457731	9·9746532	10·0006991	71	9·9993009	45
8·7557469	22077	11·2442531	7·2108167	8·7564531	22150	11·2435469	9·9745194	10·0007062	73	9·9992938	44
8·7579546	21966	11·2420454	7·2152358	8·7586681	22038	11·2413319	9·9743857	10·0007135	72	9·9992865	43
8·7601512	21854	11·2398488	7·2196326	8·7608719	21928	11·2391281	9·9742519	10·0007207	73	9·9992793	42
8·7623366	21745	11·2376634	7·2240071	8·7630647	21818	11·2369353	9·9741180	10·0007280	74	9·9992720	41
8·7645111	21636	11·2354889	7·2283597	8·7652465	21710	11·2347535	9·9739841	10·0007354	74	9·9992646	40
8·7666747	21528	11·2333253	7·2326906	8·7674175	21602	11·2325825	9·9738502	10·0007428	74	9·9992572	39
8·7688275	21422	11·2311725	7·2370000	8·7695777	21497	11·2304223	9·9737162	10·0007502	74	9·9992498	38
8·7709697	21317	11·2290303	7·2412881	8·7717274	21391	11·2282726	9·9735822	10·0007576	75	9·9992424	37
8·7731014	21212	11·2268986	7·2455551	8·7738665	21287	11·2261335	9·9734482	10·0007651	75	9·9992349	36
8·7752226	21108	11·2247774	7·2498013	8·7759952	21184	11·2240048	9·9733141	10·0007726	76	9·9992274	35
8·7773334	21006	11·2226666	7·2540267	8·7781136	21082	11·2218864	9·9731800	10·0007802	76	9·9992198	34
8·7794340	20904	11·2205660	7·2582317	8·7802218	20981	11·2197782	9·9730454	10·0007878	76	9·9992122	33
8·7815244	20804	11·2184756	7·2624164	8·7823199	20880	11·2176801	9·9729117	10·0007954	77	9·9992046	32
8·7836048	20705	11·2163952	7·2665810	8·7844079	20782	11·2155921	9·9727774	10·0008031	77	9·9991969	31
8·7856753	20606	11·2143247	7·2707258	8·7864861	20683	11·2135139	9·9726431	10·0008108	77	9·9991892	30
8·7877359	20508	11·2122641	7·2748508	8·7885544	20586	11·2114456	9·9725088	10·0008185	78	9·9991815	29
8·7897867	20411	11·2102133	7·2789563	8·7906130	20490	11·2093870	9·9723745	10·0008263	78	9·9991737	28
8·7918278	20316	11·2081722	7·2830425	8·7926620	20394	11·2073380	9·9722401	10·0008341	79	9·9991659	27
8·7938594	20220	11·2061406	7·2871095	8·7947014	20299	11·2052986	9·9721057	10·0008420	79	9·9991580	26
8·7958814	20127	11·2041186	7·2911576	8·7967313	20206	11·2032687	9·9719712	10·0008499	79	9·9991501	25
8·7978941	20033	11·2021059	7·2951860	8·7987519	20113	11·2012481	9·9718367	10·0008578	80	9·9991422	24
8·7998974	19941	11·2001026	7·2991975	8·8007632	20021	11·1992368	9·9717021	10·0008658	80	9·9991342	23
8·8018915	19849	11·1981085	7·3031897	8·8027653	19930	11·1972347	9·9715675	10·0008738	80	9·9991262	22
8·8038764	19759	11·1961236	7·3071636	8·8047583	19839	11·1952417	9·9714329	10·0008818	81	9·9991182	21
8·8058523	19669	11·1941477	7·3111194	8·8067422	19750	11·1932578	9·9712982	10·0008899	81	9·9991101	20
8·8078192	19580	11·1921808	7·3150572	8·8087172	19662	11·1912828	9·9711635	10·0008980	82	9·9991020	19
8·8097772	19492	11·1902228	7·3189773	8·8106834	19573	11·1893166	9·9710288	10·0009062	82	9·9990938	18
8·8117264	19404	11·1882736	7·3228797	8·8126407	19487	11·1873593	9·9708940	10·0009144	82	9·9990856	17
8·8136668	19317	11·1863332	7·3267646	8·8145894	19400	11·1854106	9·9707592	10·0009226	83	9·9990774	16
8·8155985	19232	11·1844015	7·3306322	8·8165294	19314	11·1834706	9·9706243	10·0009309	83	9·9990691	15
8·8175217	19146	11·1824783	7·3344827	8·8184608	19230	11·1815392	9·9704894	10·0009392	83	9·9990608	14
8·8194363	19062	11·1805637	7·3383161	8·8203838	19146	11·1796162	9·9703545	10·0009475	84	9·9990525	13
8·8213425	18979	11·1786575	7·3421327	8·8222984	19062	11·1777016	9·9702195	10·0009559	84	9·9990441	12
8·8232404	18895	11·1767596	7·3459326	8·8242046	18980	11·1757954	9·9700845	10·0009643	84	9·9990357	11
8·8251299	18813	11·1748701	7·3497159	8·8261026	18898	11·1738974	9·9699494	10·0009727	85	9·9990273	10
8·8270112	18732	11·1729888	7·3534828	8·8279924	18817	11·1720076	9·9698143	10·0009812	85	9·9990188	9
8·8288844	18651	11·1711156	7·3572334	8·8298741	18737	11·1701259	9·9696792	10·0009897	86	9·9990103	8
8·8307495	18571	11·1692505	7·3609678	8·8317478	18656	11·1682522	9·9695440	10·0009983	86	9·9990017	7
8·8326066	18491	11·1673934	7·3646863	8·8336134	18578	11·1663866	9·9694088	10·0010069	86	9·9989931	6
8·8344557	18412	11·1655443	7·3683888	8·8354712	18499	11·1645288	9·9692735	10·0010155	87	9·9989845	5
8·8362969	18335	11·1637031	7·3720757	8·8373211	18422	11·1626789	9·9691382	10·0010242	87	9·9989758	4
8·8381304	18257	11·1618696	7·3757469	8·8391633	18344	11·1608367	9·9690029	10·0010329	87	9·9989671	3
8·8399561	18180	11·1600439	7·3794027	8·8409977	18268	11·1590023	9·9688675	10·0010416	88	9·9989584	2
8·8417741	18104	11·1582259	7·3830431	8·8428245	18192	11·1571755	9·9687321	10·0010504	88	9·9989496	1
8·8435845		11·1564155	7·3866683	8·8446437		11·1553563	9·9685967	10·0010592		9·9989408	0
Cosine	Diff.	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D	Cosine
0	0523360	2904	9476640	19·107323	0524078	19·081137	1·0013723	0013705	153	[illegible]
1	0526264	2905	9473736	19·001854	0526995	18·975523	1·0013877	0013857	154	[illegible]
2	0529169	2905	9470831	18·897545	0529912	18·871068	1·0014030	0014011	154	[illegible]
3	0532074	2905	9467926	18·794377	0532829	18·767754	1·0014185	0014165	[illegible]	[illegible]
4	0534979	2904	9465021	18·692330	0535746	18·665562	1·0014341	0014320	[illegible]	[illegible]
5	0537883	2905	9462117	18·591387	0538663	18·564473	1·0014497	0014476	[illegible]	[illegible]
6	0540788	2905	9459212	18·491530	0541581	18·464471	1·0014655	0014633	[illegible]	[illegible]
7	0543693	2904	9456307	18·392742	0544498	18·365537	1·0014813	0014791	158	[illegible]
8	0546597	2905	9453403	18·295005	0547416	18·267654	1·0014972	0014950	159	[illegible]
9	0549502	2904	9450498	18·198403	0550333	18·170807	1·0015132	0015109	160	[illegible]
10	0552406	2905	9447594	18·102619	0553251	18·074977	1·0015294	0015269	161	[illegible]
11	0555311	2904	9444689	18·007937	0556169	17·980150	1·0015454	0015430	162	[illegible]
12	0558215	2904	9441785	17·914243	0559087	17·886310	1·0015617	0015592	163	[illegible]
13	0561119	2905	9438881	17·821520	0562005	17·793442	1·0015780	0015755	164	[illegible]
14	0564024	2904	9435976	17·729753	0564923	17·701529	1·0015944	0015919	164	[illegible]
15	0566928	2904	9433072	17·638928	0567841	17·610559	1·0016109	0016084	166	[illegible]
16	0569832	2904	9430168	17·549030	0570759	17·520516	1·0016275	0016249	166	[illegible]
17	0572736	2904	9427264	17·460046	0573678	17·431385	1·0016442	0016415	167	[illegible]
18	0575640	2904	9424360	17·371960	0576596	17·343155	1·0016609	0016582	168	[illegible]
19	0578544	2904	9421456	17·284761	0579515	17·255809	1·0016778	0016750	168	[illegible]
20	0581448	2904	9418552	17·198434	0582434	17·169337	1·0016947	0016918	170	[illegible]
21	0584352	2904	9415648	17·112966	0585352	17·083724	1·0017117	0017088	170	[illegible]
22	0587256	2904	9412744	17·028346	0588271	16·998957	1·0017288	0017258	172	[illegible]
23	0590160	2904	9409840	16·944559	0591190	16·915025	1·0017460	0017430	172	[illegible]
24	0593064	2903	9406936	16·861594	0594109	16·831915	1·0017633	0017602	173	[illegible]
25	0595967	2904	9404033	16·779439	0597029	16·749614	1·0017806	0017775	173	[illegible]
26	0598871	2904	9401129	16·698082	0599948	16·668112	1·0017981	0017948	175	[illegible]
27	0601775	2903	9398225	16·617512	0602867	16·587396	1·0018156	0018123	175	[illegible]
28	0604678	2904	9395322	16·537717	0605787	16·507456	1·0018332	0018298	176	[illegible]
29	0607582	2903	9392418	16·458686	0608706	16·428279	1·0018509	0018475	177	[illegible]
30	0610485	2904	9389515	16·380408	0611626	16·349855	1·0018687	0018652	178	[illegible]
31	0613389	2903	9386611	16·302873	0614546	16·272174	1·0018866	0018830	179	[illegible]
32	0616292	2904	9383708	16·226069	0617466	16·195225	1·0019045	0019009	180	[illegible]
33	0619196	2903	9380804	16·149987	0620386	16·118998	1·0019225	0019189	180	[illegible]
34	0622099	2903	9377901	16·074617	0623306	16·043482	1·0019407	0019369	181	[illegible]
35	0625002	2903	9374998	15·999948	0626226	15·968667	1·0019589	0019550	183	[illegible]
36	0627905	2903	9372095	15·925971	0629147	15·894545	1·0019772	0019733	183	[illegible]
37	0630808	2903	9369192	15·852676	0632067	15·821105	1·0019956	0019916	184	[illegible]
38	0633711	2903	9366289	15·780054	0634988	15·748337	1·0020140	0020100	184	[illegible]
39	0636614	2903	9363386	15·708096	0637908	15·676233	1·0020326	0020284	186	[illegible]
40	0639517	2903	9360483	15·636793	0640829	15·604784	1·0020512	0020470	187	[illegible]
41	0642420	2903	9357580	15·566135	0643750	15·533981	1·0020699	0020657	187	[illegible]
42	0645323	2903	9354677	15·496114	0646671	15·463814	1·0020887	0020844	188	[illegible]
43	0648226	2903	9351774	15·426721	0649592	15·394276	1·0021076	0021032	189	[illegible]
44	0651129	2902	9348871	15·357949	0652513	15·325358	1·0021266	0021221	190	[illegible]
45	0654031	2903	9345969	15·289788	0655435	15·257052	1·0021457	0021411	191	[illegible]
46	0656934	2902	9343066	15·222231	0658356	15·189349	1·0021648	0021601	192	[illegible]
47	0659836	2903	9340164	15·155270	0661278	15·122242	1·0021841	0021793	192	[illegible]
48	0662739	2902	9337261	15·088896	0664199	15·055723	1·0022034	0021985	194	[illegible]
49	0665641	2903	9334359	15·023103	0667121	14·989784	1·0022228	0022179	194	[illegible]
50	0668544	2902	9331456	14·957882	0670043	14·924417	1·0022423	0022373	[illegible]	[illegible]
51	0671446	2903	9328554	14·893226	0672965	14·859616	1·0022619	0022567	[illegible]	[illegible]
52	0674349	2902	9325651	14·829128	0675887	14·795372	1·0022815	0022763	197	[illegible]
53	0677251	2902	9322749	14·765580	0678809	14·731679	1·0023013	0022960	[illegible]	[illegible]
54	0680153	2902	9319847	14·702576	0681732	14·668529	1·0023211	0023157	198	[illegible]
55	0683055	2902	9316945	14·640109	0684654	14·605916	1·0023410	0023355	200	[illegible]
56	0685957	2902	9314043	14·578172	0687577	14·543833	1·0023610	0023555	200	[illegible]
57	0688859	2902	9311141	14·516757	0690499	14·482273	1·0023811	0023755	201	[illegible]
58	0691761	2902	9308239	14·455859	0693422	14·421230	1·0024013	0023956	202	[illegible]
59	0694663	2902	9305337	14·395471	0696345	14·360696	1·0024216	0024157	203	[illegible]
60	0697565		9302435	14·335587	0699268	14·300666	1·0024419	0024359		[illegible]
'	Cosine	Dif	Vers.	Secant	Cotan.	Tang	Cosec.	Covers	D.	Sine

Diff.	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant	D	Cosine	′
	11·2811998	7·1366620	8·7193958		11·2806042	9·9766544	10·0005956		9·9994044	60
24038	11·2787960	7·1416791	8·7218063	24105	11·2781937	9·9765213	10·0006022	6[illegible]	9·9993978	59
23906	11·2764054	7·1464636	8·7242035	23972	11·2757965	9·9763881	10·0006089	67	9·9993911	58
23775	11·2740279	7·1512219	8·7265877	23842	11·2734123	9·9762549	10·0006156	67	9·9993844	57
23645	11·2716634	7·1559542	8·7289589	23712	11·2710411	9·9761216	10·0006224	68	9·9993776	56
23516	11·2693118	7·1606609	8·7313174	23585	11·2686826	9·9759883	10·0006292	68	9·9993708	55
23390	11·2669728	7·1653422	8·7336631	23457	11·2663369	9·9758550	10·0006360	68	9·9993640	54
23263	11·2646465	7·1699984	8·7359964	23333	11·2640036	9·9757216	10·0006428	68	9·9993572	53
23140	11·2623325	7·1746297	8·7383172	23208	11·2616828	9·9755882	10·0006497	69	9·9993503	52
23016	11·2600309	7·1792365	8·7406258	23086	11·2593742	9·9754547	10·0006567	70	9·9993433	51
22895	11·2577414	7·1838189	8·7429222	22964	11·2570778	9·9753212	10·0006636	69	9·9993364	50
22774	11·2554640	7·1883773	8·7452067	22845	11·2547933	9·9751877	10·0006707	71	9·9993293	49
22655	11·2531985	7·1929118	8·7474792	22725	11·2525208	9·9750541	10·0006777	70	9·9993223	48
22538	11·2509447	7·1974228	8·7497400	22608	11·2502600	9·9749205	10·0006848	71	9·9993152	47
22420	11·2487027	7·2019104	8·7519892	22492	11·2480108	9·9747868	10·0006919	71	9·9993081	46
22305	11·2464722	7·2063750	8·7542269	22377	11·2457731	9·9746532	10·0006991	72	9·9993009	45
22191	11·2442531	7·2108167	8·7564531	22262	11·2435469	9·9745194	10·0007062	71	9·9992938	44
22077	11·2420454	7·2152358	8·7586681	22150	11·2413319	9·9743857	10·0007135	73	9·9992865	43
21966	11·2398488	7·2196326	8·7608719	22038	11·2391281	9·9742519	10·0007207	72	9·9992793	42
21854	11·2376634	7·2240071	8·7630647	21928	11·2369353	9·9741180	10·0007280	73	9·9992720	41
21745	11·2354889	7·2283597	8·7652465	21818	11·2347535	9·9739841	10·0007354	74	9·9992646	40
21636	11·2333253	7·2326906	8·7674175	21710	11·2325825	9·9738502	10·0007428	74	9·9992572	39
21528	11·2311725	7·2370000	8·7695777	21602	11·2304223	9·9737162	10·0007502	74	9·9992498	38
21422	11·2290303	7·2412881	8·7717274	21497	11·2282726	9·9735822	10·0007576	74	9·9992424	37
21317	11·2268986	7·2455551	8·7738665	21391	11·2261335	9·9734482	10·0007651	75	9·9992349	36
21212	11·2247774	7·2498013	8·7759952	21287	11·2240048	9·9733141	10·0007726	75	9·9992274	35
21108	11·2226666	7·2540267	8·7781136	21184	11·2218864	9·9731800	10·0007802	76	9·9992198	34
21006	11·2205660	7·2582317	8·7802218	21082	11·2197782	9·9730458	10·0007878	76	9·9992122	33
20904	11·2184756	7·2624164	8·7823199	20981	11·2176801	9·9729117	10·0007954	76	9·9992046	32
20804	11·2163952	7·2665810	8·7844079	20880	11·2155921	9·9727774	10·0008031	77	9·9991969	31
20705	11·2143247	7·2707258	8·7864861	20782	11·2135139	9·9726431	10·0008108	77	9·9991892	30
20606	11·2122641	7·2748508	8·7885544	20683	11·2114456	9·9725088	10·0008185	77	9·9991815	29
20508	11·2102133	7·2789563	8·7906130	20586	11·2093870	9·9723745	10·0008263	78	9·9991737	28
20411	11·2081722	7·2830425	8·7926620	20490	11·2073380	9·9722401	10·0008341	78	9·9991659	27
20316	11·2061406	7·2871095	8·7947014	20394	11·2052986	9·9721057	10·0008420	79	9·9991580	26
20220	11·2041186	7·2911576	8·7967313	20299	11·2032687	9·9719712	10·0008499	79	9·9991501	25
20127	11·2021059	7·2951869	8·7987519	20206	11·2012481	9·9718367	10·0008578	79	9·9991422	24
20033	11·2001026	7·2991975	8·8007632	20113	11·1992368	9·9717021	10·0008658	80	9·9991342	23
19941	11·1981085	7·3031897	8·8027653	20021	11·1972347	9·9715675	10·0008738	80	9·9991262	22
19849	11·1961236	7·3071636	8·8047583	19930	11·1952417	9·9714329	10·0008818	80	9·9991182	21
19759	11·1941477	7·3111194	8·8067422	19839	11·1932578	9·9712982	10·0008899	81	9·9991101	20
19669	11·1921808	7·3150572	8·8087172	19750	11·1912828	9·9711635	10·0008980	81	9·9991020	19
19580	11·1902228	7·3189773	8·8106834	19662	11·1893166	9·9710288	10·0009062	82	9·9990938	18
19492	11·1882736	7·3228797	8·8126407	19573	11·1873593	9·9708940	10·0009144	82	9·9990856	17
19404	11·1863332	7·3267646	8·8145894	19487	11·1854106	9·9707592	10·0009226	82	9·9990774	16
19317	11·1844015	7·3306322	8·8165294	19400	11·1834706	9·9706243	10·0009309	83	9·9990691	15
19232	11·1824783	7·3344827	8·8184608	19314	11·1815392	9·9704894	10·0009392	83	9·9990608	14
19146	11·1805637	7·3383161	8·8203838	19230	11·1796162	9·9703545	10·0009475	83	9·9990525	13
19062	11·1786575	7·3421327	8·8222984	19146	11·1777016	9·9702195	10·0009559	84	9·9990441	12
18979	11·1767596	7·3459326	8·8242046	19062	11·1757954	9·9700845	10·0009643	84	9·9990357	11
18895	11·1748701	7·3497159	8·8261026	18980	11·1738974	9·9699494	10·0009727	84	9·9990273	10
18813	11·1729888	7·3534828	8·8279924	18898	11·1720076	9·9698143	10·0009812	85	9·9990188	9
18732	11·1711156	7·3572334	8·8298741	18817	11·1701259	9·9696792	10·0009897	85	9·9990103	8
18651	11·1692505	7·3609678	8·8317478	18737	11·1682522	9·9695440	10·0009983	86	9·9990017	7
18571	11·1673934	7·3646863	8·8336134	18656	11·1663866	9·9694088	10·0010069	86	9·9989931	6
18491	11·1655443	7·3683888	8·8354712	18578	11·1645288	9·9692735	10·0010155	86	9·9989845	5
18412	11·1637031	7·3720757	8·8373211	18499	11·1626789	9·9691382	10·0010242	87	9·9989758	4
18335	11·1618696	7·3757469	8·8391633	18422	11·1608367	9·9690029	10·0010329	87	9·9989671	3
18257	11·1600439	7·3794027	8·8409977	18344	11·1590023	9·9688675	10·0010416	87	9·9989584	2
18180	11·1582259	7·3830431	8·8428245	18268	11·1571755	9·9687321	10·0010504	88	9·9989496	1
18104	11·1564155	7·3866683	8·8446437	18192	11·1553563	9·9685967	10·0010592	88	9·9989408	0
Diff.	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	'
0	06975[illegible]	2902	9302435	14·335587	0699268	14·300666	1·0024419	0024359		9975641	60
1	0700467	2901	9299533	14·276200	0702191	14·241134	1·0024623	0024563	204	9975437	59
2	0703368	2902	9296632	14·217304	0705115	14·182092	1·0024829	0024767	204	99752[illegible]	58
3	0706270	2901	9293730	14·158894	0708038	14·123536	1·0025035	0024972	205	997[illegible]	57
4	0709171	2902	9290829	14·100963	0710961	14·065459	1·0025241	0025178	206	9974822	56
5	0712073	2901	9287927	14·043504	0713885	14·007856	1·0025449	0025385	207	99746[illegible]	55
6	0714974	2902	9285026	13·986514	0716809	13·950719	1·0025658	0025592	207	9974408	54
7	0717876	2901	9282124	13·929985	0719733	13·894045	1·0025867	0025801	209	9974199	53
8	0720777	2901	9279223	13·873913	0722657	13·837827	1·0026078	0026010	209	997[illegible]90	52
9	0723678	2902	9276322	13·818291	0725581	13·782060	1·0026289	0026220	210	997[illegible]0	51
10	0726580	2901	9273420	13·763115	07285[illegible]	13·726738	1·0026501	0026431	211	997[illegible]	50
11	0729481	2901	9270519	13·708379	0731430	13·671856	1·0026714	002664[illegible]	212	9973357	49
12	0732382	2901	9267618	13·654077	0734354	13·617409	1·0026928	0026855	212	997314[illegible]	48
13	0735283	2901	9264717	13·600205	0737279	13·563391	1·0027142	0027069	214	9972931	47
14	0738184	2901	9261816	13·546758	0740203	13·509799	1·0027358	0027283	214	997271[illegible]	46
15	0741085	2901	9258915	13·493731	0743128	13·456625	1·0027574	0027498	215	99725[illegible]	45
16	0743986	2901	9256014	13·441118	0746053	13·403867	1·0027791	0027714	216	9972286	44
17	0746887	2900	9253113	13·388914	0748979	13·35151[illegible]	1·0028009	0027931	217	997206[illegible]	43
18	0749787	2901	9250213	13·337116	0751904	13·299574	1·0028228	0028149	218	99718[illegible]	42
19	0752688	2901	9247312	13·285719	0754829	13·248031	1·0028448	0028367	218	997163[illegible]	41
20	0755589	2900	9244411	13·234717	0757755	13·196823	1·0028669	0028587	220	9971413	40
21	07[illegible]489	2901	9241511	13·184106	0760680	13·146127	1·0028890	0028807	220	99711[illegible]	39
22	0761390	2900	9238610	13·133882	0763606	13·095757	1·0029112	0029028	221	997097[illegible]	38
23	0764290	2900	9235710	13·084040	0766532	13·045769	1·0029336	002925[illegible]	222	99707[illegible]	37
24	0767190	2901	9232810	13·034[illegible]	0769458	12·996160	1·0029560	002947[illegible]	222	99705[illegible]	36
25	0770091	2900	9229909	12·985486	0772384	12·946924	1·0029785	0029696	224	99703[illegible]	35
26	0772991	2900	9227009	12·93676[illegible]	0775311	12·898058	1·0030010	0029920	224	99700[illegible]	34
27	0775891	2900	9224109	12·888410	0778237	12·849557	1·00302[illegible]	0030146	226	9969[illegible]	33
28	0778791	2900	9221209	12·840416	0781164	12·801417	1·0030464	003037[illegible]	226	996[illegible]	32
29	0781691	2900	9218309	12·792779	0784090	12·753634	1·0030693	0030599	227	99694[illegible]	31
30	0784591	2900	9215409	12·745495	0787017	12·706205	1·0030922	0030827	228	996917[illegible]	30
31	0787491	2900	9212509	12·698560	0789944	12·659125	1·0031152	003105[illegible]	228	9968[illegible]	29
32	0790391	2899	9209609	12·651971	0792871	12·612390	1·0031383	0031285	230	9968715	28
33	0793290	2900	9206710	12·605724	0795798	12·565997	1·0031615	0031515	230	99684[illegible]	27
34	0796190	2900	9203810	12·55981[illegible]	0798726	12·519942	1·0031847	0031746	231	99682[illegible]	26
35	0799090	2899	9200910	12·514240	0801653	12·474221	1·0032081	0031978	232	99680[illegible]	25
36	0801989	2900	9198011	12·468995	0804581	12·428831	1·0032315	0032211	233	9967789	24
37	0804889	2899	9195111	12·424078	0807509	12·383768	1·0032551	0032445	233	9967[illegible]	23
38	0807788	2899	9192212	12·379484	0810437	12·339028	1·0032787	0032679	234	996[illegible]	22
39	0810687	2900	9189313	12·335210	0813365	12·294609	1·0033024	003291[illegible]	236	9967[illegible]	21
40	0813587	2899	9186413	12·291252	0816293	12·250505	1·0033261	00331[illegible]	236	996[illegible]	20
41	0816486	2899	9183514	12·247608	0819221	12·206716	1·0033500	00333[illegible]	237	9966[illegible]	19
42	0819385	2899	9180615	12·204274	0822150	12·163236	1·0033740	0033626	238	9966[illegible]	18
43	0822284	2899	9177716	12·161246	0825078	12·120062	1·0033980	0033865	239	99661[illegible]	17
44	0825183	2899	9174817	12·118527	0828007	12·077192	1·0034221	0034105	240	99658[illegible]	16
45	0828082	2899	9171918	12·076098	0830936	12·034622	1·0034463	003434[illegible]	240	9965[illegible]	15
46	0830981	2899	9169019	12·033970	0833865	11·992349	1·0034706	0034586	241	99653[illegible]	14
47	0833880	2899	9166120	11·992137	0836794	11·950370	1·0034950	0034828	242	996517[illegible]	13
48	0836778	2899	9163222	11·950595	0839723	11·908682	1·0035195	0035071	243	99649[illegible]	12
49	0839677	2899	9160323	11·909340	0842653	11·867282	1·0035440	0035315	244	99646[illegible]	11
50	0842576	2898	9157424	11·868370	0845583	11·826167	1·0035687	0035560	245	996444[illegible]	10
51	0845474	2899	9154526	11·827[illegible]	0848512	11·785333	1·0035934	0035805	245	99641[illegible]	9
52	0848373	2898	9151627	11·787274	08[illegible]442	11·744779	1·0036182	003605[illegible]	247	996[illegible]	8
53	08[illegible]1271	2898	9148729	11·747141	0854372	11·704500	1·0036431	0036299	247	996[illegible]	7
54	0854169	2898	9145831	11·707282	0857302	11·664495	1·0036681	0036547	248	99[illegible]	6
55	0857067	2899	9142933	11·667693	0860233	11·624761	1·0036932	0036796	249	9963[illegible]	5
56	0859[illegible]	2898	9140034	11·628472	0863163	11·585294	1·0037183	0037046	250	99620[illegible]	4
57	08[illegible]	2898	9137136	11·589316	0866094	11·546093	1·0037436	0037296	250	996[illegible]	3
58	08[illegible]	2899	91[illegible]8	11·[illegible]0524	0869025	11·507154	1·0037689	003754[illegible]	252	996[illegible]	2
59	08686[illegible]	2897	9131340	11·511990	0871956	11·468474	1·0037943	0037800	252	99[illegible]	1
60	0871[illegible]		9128443	11·473713	0874887	11·430052	1·0038198	003805[illegible]	253	99[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	'

Sine	Diff.	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant	D.	Cosine	′
435845	18029	11·1564155	7·3866083	8·8446437	18117	11·1553563	9·9685967	10·0010592	89	9·9989408	60
453874	17953	11·1546126	7·3902785	8·8464554	18043	11·1535446	9·9684612	10·0010681	89	9·9989319	59
471827	17880	11·1528173	7·3938730	8·8482597	17969	11·1517403	9·9683256	10·0010770	89	9·9989230	58
489707	17805	11·1510293	7·3974539	8·8500566	17895	11·1499434	9·9681901	10·0010859	89	9·9989141	57
507512	17733	11·1492488	7·4010196	8·8518461	17822	11·1481539	9·9680544	10·0010948	90	9·9989052	56
525245	17660	11·1474755	7·4045706	8·8536283	17751	11·1463717	9·9679188	10·0011038	91	9·9988962	55
542905	17588	11·1457095	7·4081071	8·8554034	17679	11·1445966	9·9677831	10·0011129	91	9·9988871	54
560493	17517	11·1439507	7·4116293	8·8571713	17608	11·1428287	9·9676474	10·0011220	91	9·9988780	53
578010	17447	11·1421990	7·4151372	8·8589321	17538	11·1410679	9·9675116	10·0011311	91	9·9988689	52
595457	17376	11·1404543	7·4186311	8·8606859	17468	11·1393141	9·9673758	10·0011402	92	9·9988598	51
612833	17306	11·1387167	7·4221109	8·8624327	17398	11·1375673	9·9672399	10·0011494	92	9·9988506	50
630139	17237	11·1369861	7·4255767	8·8641725	17330	11·1358275	9·9671041	10·0011586	93	9·9988414	49
647376	17169	11·1352624	7·4290288	8·8659055	17262	11·1340945	9·9669681	10·0011679	93	9·9988321	48
664545	17101	11·1335455	7·4324673	8·8676317	17194	11·1323683	9·9668322	10·0011772	93	9·9988228	47
681646	17034	11·1318354	7·4358921	8·8693511	17127	11·1306489	9·9666961	10·0011865	94	9·9988135	46
698680	16966	11·1301320	7·4393035	8·8710638	17061	11·1289362	9·9665601	10·0011959	94	9·9988041	45
715646	16900	11·1284354	7·4427015	8·8727699	16995	11·1272301	9·9664240	10·0012053	94	9·9987947	44
732546	16835	11·1267454	7·4460862	8·8744694	16929	11·1255306	9·9662879	10·0012147	95	9·9987853	43
749381	16769	11·1250619	7·4494576	8·8761623	16864	11·1238377	9·9661517	10·0012242	95	9·9987758	42
766150	16704	11·1233850	7·4528163	8·8778487	16799	11·1221513	9·9660155	10·0012337	96	9·9987663	41
782854	16639	11·1217146	7·4561619	8·8795286	16736	11·1204714	9·9658793	10·0012433	96	9·9987567	40
799493	16576	11·1200507	7·4594946	8·8812022	16672	11·1187978	9·9657430	10·0012529	96	9·9987471	39
816069	16512	11·1183931	7·4628146	8·8828694	16609	11·1171306	9·9656067	10·0012625	97	9·9987375	38
832581	16450	11·1167419	7·4661219	8·8845304	16547	11·1154697	9·9654703	10·0012722	97	9·9987278	37
849031	16387	11·1150969	7·4694166	8·8861850	16484	11·1138150	9·9653339	10·0012819	97	9·9987181	36
865418	16325	11·1134582	7·4726989	8·8878334	16423	11·1121666	9·9651974	10·0012916	98	9·9987084	35
881743	16264	11·1118257	7·4759688	8·8894757	16362	11·1105243	9·9650610	10·0013014	98	9·9986986	34
898007	16202	11·1101993	7·4792264	8·8911119	16301	11·1088881	9·9649244	10·0013112	98	9·9986888	33
914209	16142	11·1085791	7·4824719	8·8927420	16240	11·1072580	9·9647879	10·0013210	99	9·9986790	32
930351	16082	11·1069649	7·4857052	8·8943660	16182	11·1056340	9·9646513	10·0013309	100	9·9986691	31
946433	16022	11·1053567	7·4889265	8·8959842	16121	11·1040158	9·9645146	10·0013409	99	9·9986591	30
962455	15963	11·1037545	7·4921359	8·8975903	16063	11·1024037	9·9643779	10·0013508	100	9·9986492	29
978418	15904	11·1021582	7·4953335	8·8992026	16004	11·1007974	9·9642412	10·0013608	100	9·9986392	28
994322	15846	11·1005678	7·4985191	8·9008030	15947	11·0991970	9·9641044	10·0013708	101	9·9986292	27
010168	15787	11·0989832	7·5016934	8·9023977	15889	11·0976023	9·9639676	10·0013809	101	9·9986191	26
025955	15730	11·0974045	7·5048560	8·9039866	15831	11·0960134	9·9638308	10·0013910	102	9·9986090	25
041685	15673	11·0958315	7·5080071	8·9055697	15775	11·0944303	9·9636939	10·0014012	102	9·9985988	24
057358	15617	11·0942642	7·5111468	8·9071472	15718	11·0928528	9·9635570	10·0014114	102	9·9985886	23
072975	15560	11·0927025	7·5142751	8·9087190	15663	11·0912810	9·9634200	10·0014216	102	9·9985784	22
088535	15504	11·0911465	7·5173923	8·9102853	15607	11·0897147	9·9632830	10·0014318	103	9·9985682	21
104039	15448	11·0895961	7·5204982	8·9118460	15552	11·0881540	9·9631460	10·0014421	104	9·9985579	20
119487	15394	11·0880513	7·5235931	8·9134012	15497	11·0865988	9·9630089	10·0014525	103	9·9985475	19
134881	15338	11·0865119	7·5266769	8·9149509	15443	11·0850491	9·9628718	10·0014628	104	9·9985372	18
150219	15285	11·0849781	7·5297498	8·9164952	15388	11·0835048	9·9627346	10·0014732	105	9·9985268	17
165504	15230	11·0834496	7·5328119	8·9180340	15335	11·0819660	9·9625974	10·0014837	105	9·9985163	16
180734	15177	11·0819266	7·5358632	8·9195675	15282	11·0804325	9·9624602	10·0014942	105	9·9985058	15
195911	15123	11·0804089	7·5389038	8·9210957	15229	11·0789043	9·9623229	10·0015047	105	9·9984953	14
211034	15071	11·0788966	7·5419338	8·9226186	15177	11·0773814	9·9621856	10·0015152	106	9·9984848	13
226105	15018	11·0773895	7·5449532	8·9241363	15124	11·0758637	9·9620482	10·0015258	106	9·9984742	12
241123	14966	11·0758877	7·5479621	8·9256487	15073	11·0743513	9·9619108	10·0015364	107	9·9984636	11
256089	14914	11·0743911	7·5509607	8·9271560	15021	11·0728440	9·9617733	10·0015471	107	9·9984529	10
271003	14863	11·0728997	7·5539489	8·9286581	14971	11·0713419	9·9616359	10·0015578	107	9·9984422	9
285866	14812	11·0714134	7·5569268	8·9301552	14919	11·0698448	9·9614984	10·0015685	108	9·9984315	8
300678	14761	11·0699322	7·5598946	8·9316471	14869	11·0683529	9·9613608	10·0015793	108	9·9984207	7
315439	14711	11·0684561	7·5628522	8·9331340	14820	11·0668660	9·9612232	10·0015901	109	9·9984099	6
330150	14661	11·0669850	7·5657998	8·9346160	14769	11·0653840	9·9610855	10·0016010	109	9·9983990	5
344811	14611	11·0655189	7·5687373	8·9360929	14721	11·0639071	9·9609478	10·0016119	109	9·9983881	4
359422	14561	11·0640578	7·5716650	8·9375650	14671	11·0624350	9·9608101	10·0016228	109	9·9983772	3
373983	14513	11·0626017	7·5745828	8·9390321	14623	11·0609679	9·9606723	10·0016337	110	9·9983663	2
388496	14464	11·0611504	7·5774908	8·9404944	14574	11·0595056	9·9605345	10·0016447	111	9·9983554	1
402960		11·0597040	7·5803891	8·9419518		11·0580482	9·9603967	10·0016554		9·9983442	0
Cosine	Diff.	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D.	Sine	′

'	Sine	Dif	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	D.	Cosine	'
0	0871557	2898	9128443	11·473713	0874887	11·430052	1·0038198	0038053	254	9961947	60
1	0874455	2898	9125545	11·435692	0877818	11·391885	1·0038454	0038307	255	9961693	59
2	0877353	2898	9122647	11·397922	0880749	11·353970	1·0038713	0038562	255	9961438	58
3	0880251	2897	9119749	11·360402	0883681	11·316304	1·0038969	0038817	257	9961183	57
4	0883148	2898	9116852	11·323129	0886612	11·278885	1·0039227	0039074	257	9960926	56
5	0886046	2897	9113954	11·286101	0889544	11·241712	1·0039486	0039331	258	9960669	55
6	0888943	2897	9111057	11·249316	0892476	11·204780	1·0039747	0039589	259	9960411	54
7	0891840	2898	9108160	11·212770	0895408	11·168089	1·0040008	0039848	260	9960152	53
8	0894738	2897	9105262	11·176462	0898341	11·131635	1·0040270	0040108	261	[illegible]	52
9	0897635	2897	9102365	11·140383	0901273	11·095416	1·0040534	0040369	261	[illegible]	51
10	0900532	2897	9099468	11·104549	0904206	11·059431	1·0040798	0040630	263	[illegible]	50
11	0903429	2897	9096571	11·068940	0907138	11·023676	1·0041061	0040893	263	[illegible]	49
12	0906326	2897	9093674	11·033560	0910071	10·988130	1·0041326	0041156	264	[illegible]	48
13	0909223	2896	9090777	10·998406	0913004	10·952850	1·0041592	0041420	265	[illegible]	47
14	0912119	2897	9087881	10·963476	0915938	10·917775	1·0041857	0041685	266	[illegible]	46
15	0915016	2897	9084984	10·928768	0918871	10·882921	1·0042127	0041951	266	[illegible]	45
16	0917913	2896	9082087	10·894281	0921804	10·848288	1·0042396	0042217	268	[illegible]	44
17	0920809	2897	9079191	10·860011	0924738	10·813872	1·0042666	0042485	268	[illegible]	43
18	0923706	2896	9076294	10·825957	0927672	10·779673	[illegible]	0042753	269	[illegible]	42
19	0926602	2897	9073398	10·792117	0930606	10·745687	1·0043208	0043022	270	[illegible]	41
20	0929499	2896	9070501	10·758488	0933540	10·711913	1·0043480	0043292	271	[illegible]	40
21	0932395	2896	9067605	10·725070	0936474	10·678348	1·0043752	0043563	272	[illegible]	39
22	0935291	2896	9064709	10·691559	0939409	10·644992	1·0044026	0043835	272	[illegible]	38
23	0938187	2896	9061813	10·658854	0942344	10·611841	1·0044302	0044107	273	[illegible]	37
24	0941083	2896	9058917	10·626054	0945278	10·578895	1·0044578	0044380	275	[illegible]	36
[illegible]	0943979	2896	9056021	10·593455	0948213	10·546151	1·0044855	0044655	275	[illegible]	35
26	0946875	2896	9053125	10·561057	0951148	10·513607	1·0045132	[illegible]	275	[illegible]	34
27	0949771	2895	9050229	10·528857	0954084	10·481261	1·0045411	0045205	277	[illegible]	33
28	0952666	[illegible]	9047334	10·496854	0957019	10·449112	1·0045690	0045482	278	[illegible]	32
29	0955562	2896	9044438	10·465046	0959955	10·417158	1·0045970	0045760	279	[illegible]	31
30	0958458	2895	9041542	10·433431	0962890	10·385397	1·0046251	0046038	279	[illegible]	30
31	0961353	2895	9038647	10·402007	0965826	10·353827	1·0046533	0046317	281	[illegible]	29
32	0964248	2896	9035752	10·370772	0968763	10·322447	1·0046815	0046597	281	[illegible]	28
33	0967144	2895	9032856	10·339726	0971699	10·291255	1·0047099	0046878	282	[illegible]	27
34	0970049	2895	9029961	10·308866	0974635	10·260249	1·0047384	0047160	283	[illegible]	26
35	0972934	2895	9027066	10·278190	0977572	10·229428	1·0047669	0047443	283	[illegible]	25
36	0975829	2895	9024171	10·247697	0980509	10·198789	1·0047955	0047726	284	[illegible]	24
37	0978724	2895	9021276	10·217386	0983446	10·168332	1·0048242	0048010	285	[illegible]	23
38	0981619	2895	9018381	10·187254	0986383	10·138054	1·0048530	0048295	286	[illegible]	22
39	0984514	2894	9015486	10·157300	0989320	10·107954	1·0048819	0048581	287	[illegible]	21
40	0987408	2895	9012592	10·127522	0992257	10·078031	1·0049108	0048868	288	[illegible]	20
41	0990303	2894	9009697	10·097920	[illegible]5194	10·048283	1·0049399	0049156	288	[illegible]	19
42	0993197	2895	9006803	10·068491	0998133	10·018708	1·0049690	0049444	290	[illegible]	18
43	0996092	2894	9003908	10·039234	1001071	9·9893050	1·0049982	0049734	290	[illegible]	17
44	0998986	2895	9001014	10·010147	1004009	9·9600724	1·0050274	0050024	291	[illegible]	16
45	1001881	2894	8998119	9·9812291	1006947	9·9310088	1·0050569	0050315	292	[illegible]	15
46	1004775	2894	8995225	9·9521787	1009886	9·9021125	1·0050864	0050607	293	[illegible]	14
47	1007669	[illegible]	8992331	9·9238943	1012824	9·8733823	1·0051160	0050899	294	[illegible]	13
48	1010563	2894	8989437	9·8954741	1015763	9·8448166	1·0051456	0051193	294	[illegible]	12
49	1013457	2894	8986543	9·8672176	1018702	9·8164140	1·0051754	0051487	295	[illegible]	11
50	1016351	2893	8983649	9·8391227	1021641	9·7881732	1·0052052	0051783	295	[illegible]	10
51	1019243	2893	8980755	9·8111880	1024580	9·7600927	1·00523[illegible]	0052079	296	[illegible]	9
52	1022138	2894	8977862	9·7834124	1027520	9·7321713	1·0052[illegible]	0052377	298	[illegible]	8
53	1025032	2893	8974968	9·7557911	1030460	9·7044075	1·0052952	0052675	298	[illegible]	7
54	1027925	2894	8972075	9·7283227	1033399	9·6768000	1·0053254	0052972	299	9947024	6
55	1030819	2893	8969181	9·7010260	1036340	9·6493475	1·0053557	0053271	301	[illegible]	5
56	1033712	2893	8966288	9·6738730	1039280	9·6220486	1·0053860	0053572	301	[illegible]	4
57	1036605	2894	8963395	9·6468724	1042220	9·5949022	1·0054164	0053873	302	[illegible]	3
58	1039499	2893	8960501	9·6200229	1045161	9·5679068	1·0054470	0054175	304	[illegible]	2
59	1042392	2893	8957608	9·5933233	1048101	9·5411063	1·0054776	0054477	304	[illegible]	1
60	1045285		8954715	9·5667722	1051042	9·5143645	1·0055083	0054781		[illegible]	0
'	Cosine	Dif	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D	Sine	'

′	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant	D.	Cosine	′
0	11·0597040	7·5803891	8·9419518	14526	11·0580482	9·9603967	10·0016558	110	9·9983442	60
1	11·0582624	7·5832778	8·9434044	14479	11·0565956	9·9602588	10·0016668	112	9·9983332	59
2	11·0568257	7·5861568	8·9448523	14431	11·0551477	9·9601209	10·0016780	111	9·9983220	58
3	11·0553937	7·5890263	8·9462954	14384	11·0537046	9·9599829	10·0016891	112	9·9983109	57
4	11·0539665	7·5918864	8·9477338	14338	11·0522662	9·9598449	10·0017003	112	9·9982997	56
5	11·0525439	7·5947370	8·9491676	14291	11·0508324	9·9597069	10·0017115	113	9·9982885	55
6	11·0511261	7·5975783	8·9505967	14244	11·0494033	9·9595688	10·0017228	112	9·9982772	54
7	11·0497129	7·6004103	8·9520211	14199	11·0479789	9·9594306	10·0017340	114	9·9982660	53
8	11·0483043	7·6032331	8·9534410	14154	11·0465590	9·9592925	10·0017454	113	9·9982546	52
9	11·0469004	7·6060468	8·9548564	14108	11·0451436	9·9591543	10·0017567	115	9·9982433	51
10	11·0455009	7·6088513	8·9562672	14063	11·0437328	9·9590160	10·0017682	114	9·9982318	50
11	11·0441060	7·6116468	8·9576735	14019	11·0423265	9·9588777	10·0017796	115	9·9982204	49
12	11·0427157	7·6144333	8·9590754	13974	11·0409246	9·9587394	10·0017911	115	9·9982089	48
13	11·0413297	7·6172109	8·9604728	13931	11·0395272	9·9586010	10·0018026	115	9·9981974	47
14	11·0399483	7·6199796	8·9618659	13886	11·0381341	9·9584626	10·0018141	116	9·9981859	46
15	11·0385712	7·6227395	8·9632545	13843	11·0367455	9·9583242	10·0018257	117	9·9981743	45
16	11·0371986	7·6254906	8·9646388	13800	11·0353612	9·9581857	10·0018374	116	9·9981626	44
17	11·0358303	7·6282330	8·9660188	13756	11·0339812	9·9580471	10·0018490	117	9·9981510	43
18	11·0344663	7·6309668	8·9673944	13714	11·0326056	9·9579086	10·0018607	118	9·9981393	42
19	11·0331066	7·6336920	8·9687658	13672	11·0312342	9·9577699	10·0018725	117	9·9981275	41
20	11·0317513	7·6364086	8·9701330	13629	11·0298670	9·9576313	10·0018842	118	9·9981158	40
21	11·0304001	7·6391167	8·9714959	13588	11·0285041	9·9574926	10·0018960	119	9·9981040	39
22	11·0290532	7·6418164	8·9728547	13545	11·0271453	9·9573538	10·0019079	119	9·9980921	38
23	11·0277105	7·6445078	8·9742092	13505	11·0257908	9·9572151	10·0019198	119	9·9980802	37
24	11·0263720	7·6471908	8·9755597	13463	11·0244403	9·9570763	10·0019317	120	9·9980683	36
25	11·0250376	7·6498655	8·9769060	13423	11·0230940	9·9569374	10·0019437	120	9·9980563	35
26	11·0237074	7·6525320	8·9782483	13382	11·0217517	9·9567985	10·0019557	120	9·9980443	34
27	11·0223812	7·6551903	8·9795865	13341	11·0204135	9·9566595	10·0019677	121	9·9980323	33
28	11·0210592	7·6578404	8·9809206	13301	11·0190794	9·9565206	10·0019798	121	9·9980202	32
29	11·0197411	7·6604825	8·9822507	13262	11·0177493	9·9563816	10·0019919	121	9·9980081	31
30	11·0184271	7·6631166	8·9835769	13222	11·0164231	9·9562425	10·0020040	122	9·9979960	30
31	11·0171171	7·6657427	8·9848991	13182	11·0151009	9·9561034	10·0020162	122	9·9979838	29
32	11·0158111	7·6683608	8·9862173	13144	11·0137827	9·9559643	10·0020284	123	9·9979716	28
33	11·0145090	7·6709711	8·9875317	13104	11·0124683	9·9558251	10·0020407	123	9·9979593	27
34	11·0132109	7·6735735	8·9888421	13066	11·0111579	9·9556859	10·0020530	123	9·9979470	26
35	11·0119166	7·6761682	8·9901487	13027	11·0098513	9·9555466	10·0020653	124	9·9979347	25
36	11·0106263	7·6787550	8·9914514	12989	11·0085486	9·9554073	10·0020777	124	9·9979223	24
37	11·0093398	7·6813342	8·9927503	12951	11·0072497	9·9552680	10·0020901	124	9·9979099	23
38	11·0080571	7·6839058	8·9940454	12913	11·0059546	9·9551286	10·0021025	125	9·9978975	22
39	11·0067783	7·6864697	8·9953367	12876	11·0046633	9·9549892	10·0021150	125	9·9978850	21
40	11·0055032	7·6890260	8·9966243	12838	11·0033757	9·9548497	10·0021275	126	9·9978725	20
41	11·0042319	7·6915749	8·9979081	12802	11·0020919	9·9547102	10·0021401	126	9·9978599	19
42	11·0029644	7·6941162	8·9991883	12764	11·0008117	9·9545706	10·0021527	126	9·9978473	18
43	11·0017006	7·6966502	9·0004647	12728	10·9995353	9·9544311	10·0021653	127	9·9978347	17
44	11·0004405	7·6991767	9·0017375	12691	10·9982625	9·9542914	10·0021780	127	9·9978220	16
45	10·9991840	7·7016959	9·0030066	12655	10·9969934	9·9541518	10·0021907	127	9·9978093	15
46	10·9979313	7·7042078	9·0042721	12619	10·9957279	9·9540120	10·0022034	128	9·9977966	14
47	10·9966821	7·7067124	9·0055340	12584	10·9944660	9·9538723	10·0022162	128	9·9977838	13
48	10·9954366	7·7092098	9·0067924	12547	10·9932076	9·9537325	10·0022290	128	9·9977710	12
49	10·9941947	7·7117001	9·0080471	12513	10·9919529	9·9535927	10·0022418	129	9·9977582	11
50	10·9929564	7·7141832	9·0092984	12477	10·9907016	9·9534528	10·0022547	130	9·9977453	10
51	10·9917216	7·7166592	9·0105461	12442	10·9894539	9·9533129	10·0022677	129	9·9977323	9
52	10·9904904	7·7191281	9·0117903	12407	10·9882097	9·9531729	10·0022806	130	9·9977194	8
53	10·9892626	7·7215900	9·0130310	12372	10·9869690	9·9530329	10·0022936	131	9·9977064	7
54	10·9880384	7·7240450	9·0142682	12339	10·9857318	9·9528929	10·0023067	130	9·9976933	6
55	10·9868177	7·7264930	9·0155021	12304	10·9844979	9·9527528	10·0023197	131	9·9976803	5
56	10·9856004	7·7289341	9·0167325	12269	10·9832675	9·9526127	10·0023328	132	9·9976672	4
57	10·9843865	7·7313684	9·0179594	12237	10·9820406	9·9524725	10·0023460	132	9·9976540	3
58	10·9831761	7·7337958	9·0191831	12202	10·9808169	9·9523323	10·0023592	132	9·9976408	2
59	10·9819691	7·7362164	9·0204033	12169	10·9795967	9·9521921	10·0023724	133	9·9976276	1
60	10·9807654	7·7386303	9·0216202		10·9783798	9·9520518	10·0023857		9·9976143	0
′	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D.	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	'
0	1045285	2893	895471[illegible]	9·5667722	1051042	9·5143645	1·0055083	0054781	305	9945219	60
1	1048178	2892	8951822	9·5403686	1053943	9·4878149	1·0055391	0055086	305	9944914	59
2	1051070	2893	8948930	9·5141110	1056[illegible]	9·4614116	1·0055699	0055391	306	9944609	58
3	10539[illegible]	2893	8946037	9·4879984	10[illegible]	9·4351531	1·0056009	0055697	307	9944303	57
4	10568[illegible]	2892	894[illegible]144	9·4620296	10628[illegible]	9·4090[illegible]	1·0056319	0056004	308	9943996	56
5	1059748	2893	8940252	9·4362033	1065750	[illegible]	1·0056631	0056312	309	9943688	55
6	1062641	2892	8937359	9·4105184	1068692	9·3572355	1·0056943	0056621	309	9943379	54
7	106[illegible]533	2892	8934467	9·3849738	1071634	9·3315450	1·0057256	0056930	310	994[illegible]	53
8	106[illegible]425	2893	8931575	9·3595682	1074576	9·3059936	1·0057570	0057240	312	9942760	52
9	1071[illegible]18	2892	8928682	9·3343006	1077519	9·2805402	1·0057885	0057552	312	994244[illegible]	51
10	107421[illegible]	2892	892[illegible]790	9·3091699	1080462	9·2553035	1·0058200	0057864	313	994213[illegible]	50
11	1077102	2892	8922898	9·2841749	1083405	9·2301627	1·0058517	0058177	313	9941823	49
12	1079994	2891	8920006	9·2593145	1086348	9·2051564	1·0058834	0058490	315	9941510	48
13	1082885	2892	8917115	9·2345877	1089291	9·1802832	1·0059153	0058805	315	994119[illegible]	47
14	1085777	2892	8914223	9·2099934	1092234	9·1555430	1·0059472	0059120	317	99408[illegible]	46
15	1088669	2891	8911331	9·1855305	1095178	9·1309348	1·0059792	00594[illegible]7	317	99405[illegible]	45
16	1091560	2892	8908440	9·1611980	1098122	9·1064561	1·0060113	0059754	318	9940[illegible]	44
17	1094452	[illegible]	8905548	9·1369949	1101066	9·0821074	1·0060435	0060072	318	99399[illegible]	43
18	1097343	2891	8902657	9·1129200	1104010	9·0578867	1·0060757	0060390	320	9939610	42
19	1100234	2892	8899766	9·0889725	11069[illegible]	9·0337933	1·0061081	0060710	321	[illegible]	41
20	1103126	2891	8896874	9·0651512	1109899	9·0098261	1·00614[illegible]5	0061031	321	99389[illegible]	40
21	1106017	289[illegible]	889[illegible]	9·0414553	1112844	8·98598[illegible]	1·0061731	0061352	322	99[illegible]	39
22	1108[illegible]	[illegible]	889[illegible]092	9·0178837	1115789	8·9622668	1·00620[illegible]7	0061674	323	993[illegible]	38
23	1111799	2890	8888201	8·9944154	1118734	8·9386726	1·0062384	0061997	324	9938003	37
24	1114689	289[illegible]	888[illegible]311	8·9711095	1121680	8·9152009	1·0062712	00623[illegible]	324	9937679	36
25	1117580	289[illegible]	8882420	8·9479051	1124625	8·8918505	1·0063040	0062645	326	99373[illegible]	35
26	1120471	2890	8879529	8·9248211	1127571	8·8686206	1·0063370	0062971	326	99370[illegible]9	34
27	1123361	2891	8876639	8·9018567	1130517	8·84[illegible]5103	1·0063701	0063297	328	9936763	33
28	1126252	289[illegible]	8873748	8·8790109	1133463	8·8225186	1·0064032	0063625	328	9936[illegible]	32
29	1129142	2890	8870858	8·8562828	1136410	8·7[illegible]	1·00643[illegible]	006395[illegible]	3[illegible]	9936047	31
30	1132032	2890	8867968	8·8336715	1139356	8·7768874	1·0064697	0064281	330	99357[illegible]	30
31	1134922	2890	8865078	8·8111761	114230[illegible]	8·7542461	1·0065031	00646[illegible]	331	99[illegible]	29
32	1137812	2890	8862188	8·7887957	11452[illegible]	8·7317198	1·00653[illegible]	0064942	331	99[illegible]	28
33	1140702	2891	88[illegible]298	8·766[illegible]	1148197	8·7093077	1·00657[illegible]2	006[illegible]273	332	9934[illegible]	27
34	114359[illegible]	2890	88[illegible]408	8·7443766	1151144	8·6870088	1·0066039	00656[illegible]	33[illegible]	993[illegible]	26
[illegible]	114648[illegible]	2891	88[illegible]518	8·72233[illegible]	1154092	8·6648223	1·0066376	00659[illegible]	334	9934067	25
36	1149372	2889	8850628	8·7004071	1157039	8·6427475	1·0066714	0066272	335	99[illegible]728	24
37	1152261	2890	8847739	8·678[illegible]	1159987	8·6207833	1·0067054	0066607	336	993[illegible]93	23
38	1155151	2889	8844849	8·6[illegible]8805	11629[illegible]6	8·[illegible]989290	1·006739[illegible]	0066943	336	993[illegible]57	22
39	1158040	2889	884[illegible]	8·6[illegible]2812	116[illegible]884	8·57[illegible]838	1·00677[illegible]	00[illegible]7279	337	993[illegible]	21
40	11[illegible]929	2889	883[illegible]071	8·6137[illegible]	116[illegible]832	8·555546[illegible]	1·0068077	0067[illegible]16	339	993[illegible]	20
41	1163[illegible]	2889	88[illegible]	8·592406[illegible]	117178[illegible]	8·5340172	1·0068419	0067955	339	99320[illegible]	19
42	11667[illegible]7	2889	8833293	8·5711295	117473[illegible]	8·51259[illegible]	1·00687[illegible]	0068294	339	99317[illegible]	18
43	1169596	2889	8830404	8·5499584	1177679	8·4912772	1·0069108	00686[illegible]33	341	99313[illegible]	17
44	1172485	2889	8827515	8·5288923	1180628	8·4700651	1·00694[illegible]	00689[illegible]	341	99310[illegible]	16
45	1175374	2889	8824626	8·5079304	118357[illegible]	8·4489[illegible]	1·00697[illegible]	[illegible]	34[illegible]	[illegible]	15
46	1178263	2888	8821737	8·4870721	11865[illegible]	8·4279[illegible]	1·007[illegible]	0069[illegible]	342	99[illegible]	14
47	1181151	2889	8818849	8·46631[illegible]	118947[illegible]	8·4070[illegible]15	1·00764[illegible]	007[illegible]01	34[illegible]	[illegible]99	13
48	1184040	2888	8815960	8·4456629	119242[illegible]	8·[illegible]862519	1·00708[illegible]	007034[illegible]	34[illegible]	[illegible]	12
49	1186928	2888	8813072	8·4251105	119[illegible]	8·36[illegible]	1·00711[illegible]	007[illegible]	34[illegible]	[illegible]	11
50	11898[illegible]6	2888	8810184	8·40465[illegible]	11983[illegible]	8·3449558	1·0071544	0071035	34[illegible]	[illegible]	10
51	1192704	2889	8807296	8·[illegible]4306[illegible]	1201273	8·3244577	1·00718[illegible]5	00714[illegible]	34[illegible]	[illegible]	9
52	119559[illegible]	2888	8804407	8·3640[illegible]	[illegible]20423[illegible]	8·3040[illegible]	1·007224[illegible]	00717[illegible]	34[illegible]	[illegible]	8
53	1198[illegible]	2887	8801519	8·3438986	1207182	8·[illegible]37[illegible]79	[illegible]	[illegible]	34[illegible]	[illegible]	7
54	1201368	2888	8798632	8·3238415	1210133	8·2635547	1·00729[illegible]	00724[illegible]	349	[illegible]373	6
55	1204256	2888	87[illegible]5744	8·3038812	12130[illegible]5	8·2[illegible]34465	1·0073310	0072776	351	9927220	5
56	1207144	288[illegible]	879[illegible]	8·2840171	12160[illegible]	8·22[illegible]	1·0073666	0073127	352	9926873	4
57	1210031	2888	[illegible]	8·[illegible]248[illegible]	1218958	8·20[illegible]239	1·00740[illegible]	00734[illegible]	[illegible]	[illegible]	3
58	1212919	2887	8787081	8·2445748	1221941	8·1837041	1·00743[illegible]	0073831	35[illegible]	[illegible]	2
59	1215806	2887	878[illegible]194	8·2249952	122[illegible]93[illegible]	8·16[illegible]9786	1·00747[illegible]	0074184	35[illegible]	[illegible]	1
60	12[illegible]693		8781307	8·2055090	12[illegible]7846	8·1[illegible]3464	1·00750[illegible]	0074[illegible]		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	'

ne	Diff	Cosec.	Verseds.	Tang.	Diff.	Cotang.	Covers.	Secant	D.	Cosine	'
22346	12002	10·9807654	7·7386303	9·0216202	12136	10·9783798	9·9520518	10·0023857	132	9·9976143	60
04348	11970	10·9795652	7·7410375	9·0228338	12101	10·9771662	9·9519115	10·0023989	134	9·9976011	59
16318	11936	10·9783682	7·7434380	9·0240441	12069	10·9759559	9·9517711	10·0024123	134	9·9975877	58
28254	11903	10·9771746	7·7458319	9·0252510	12036	10·9747490	9·9516307	10·0024257	134	9·9975743	57
40157	11870	10·9759843	7·7482192	9·0264546	12004	10·9735454	9·9514902	10·0024391	134	9·9975609	56
52027	11838	10·9747973	7·7505999	9·0276552	11972	10·9723448	9·9513497	10·0024525	135	9·9975475	55
63865	11804	10·9736135	7·7529742	9·0288524	11940	10·9711476	9·9512092	10·0024660	135	9·9975340	54
75669	11773	10·9724331	7·7553419	9·0300464	11909	10·9699536	9·9510686	10·0024795	136	9·9975205	53
87442	11740	10·9712558	7·7577031	9·0312373	11876	10·9687627	9·9509280	10·0024931	136	9·9975069	52
99182	11708	10·9700818	7·7600580	9·0324249	11844	10·9675751	9·9507874	10·0025067	136	9·9974933	51
10890	11677	10·9689110	7·7624064	9·0336093	11813	10·9663907	9·9506467	10·0025203	137	9·9974797	50
22567	11645	10·9677433	7·7647485	9·0347906	11782	10·9652094	9·9505059	10·0025340	137	9·9974660	49
34212	11613	10·9665788	7·7670843	9·0359688	11751	10·9640312	9·9503652	10·0025477	137	9·9974523	48
45825	11582	10·9654175	7·7694138	9·0371439	11720	10·9628561	9·9502243	10·0025614	138	9·9974386	47
57407	11551	10·9642593	7·7717371	9·0383159	11689	10·9616841	9·9500835	10·0025752	138	9·9974248	46
68958	11519	10·9631042	7·7740541	9·0394848	11658	10·9605152	9·9499426	10·0025890	139	9·9974110	45
80477	11489	10·9619523	7·7763649	9·0406506	11628	10·9593494	9·9498016	10·0026029	138	9·9973971	44
91966	11458	10·9608034	7·7786695	9·0418134	11597	10·9581866	9·9496607	10·0026167	140	9·9973833	43
03424	11428	10·9596576	7·7809682	9·0429731	11568	10·9570269	9·9495196	10·0026307	139	9·9973693	42
14852	11397	10·9585148	7·7832607	9·0441299	11537	10·9558701	9·9493786	10·0026446	140	9·9973554	41
26249	11368	10·9573751	7·7855472	9·0452836	11507	10·9547164	9·9492375	10·0026586	141	9·9973414	40
37617	11337	10·9562383	7·7878276	9·0464343	11478	10·9535657	9·9490963	10·0026727	141	9·9973273	39
48954	11307	10·9551046	7·7901020	9·0475821	11449	10·9524179	9·9489551	10·0026868	141	9·9973132	38
60261	11277	10·9539739	7·7923705	9·0487270	11419	10·9512730	9·9488139	10·0027009	141	9·9972991	37
71538	11248	10·9528462	7·7946331	9·0498689	11389	10·9501311	9·9486726	10·0027150	142	9·9972850	36
82786	11219	10·9517214	7·7968897	9·0510078	11361	10·9489922	9·9485313	10·0027292	142	9·9972708	35
94005	11189	10·9505995	7·7991403	9·0521439	11332	10·9478561	9·9483899	10·0027434	143	9·9972566	34
05194	11160	10·9494806	7·8013855	9·0532771	11301	10·9467229	9·9482486	10·0027577	143	9·9972423	33
16354	11131	10·9483646	7·8036240	9·0544074	11275	10·9455926	9·9481071	10·0027720	143	9·9972280	32
27485	11103	10·9472515	7·8058580	9·0555349	11246	10·9444651	9·9479656	10·0027863	144	9·9972137	31
38588	11075	10·9461412	7·8080856	9·0566595	11218	10·9433405	9·9478241	10·0028007	144	9·9971993	30
49661	11045	10·9450339	7·8103075	9·0577813	11189	10·9422187	9·9476825	10·0028151	145	9·9971849	29
60706	11017	10·9439294	7·8125237	9·0589002	11162	10·9410998	9·9475409	10·0028296	145	9·9971704	28
71723	10988	10·9428277	7·8147343	9·0600164	11133	10·9399836	9·9473992	10·0028441	145	9·9971559	27
82711	10961	10·9417289	7·8169392	9·0611297	11106	10·9388703	9·9472576	10·0028586	146	9·9971414	26
93672	10932	10·9406328	7·8191386	9·0622403	11079	10·9377597	9·9471159	10·0028732	146	9·9971268	25
04604	10903	10·9395396	7·8213323	9·0633482	11051	10·9366518	9·9469741	10·0028878	146	9·9971122	24
15509	10877	10·9384491	7·8235205	9·0644533	11023	10·9355467	9·9468323	10·0029024	147	9·9970976	23
26386	10849	10·9373614	7·8257032	9·0655556	10997	10·9344444	9·9466904	10·0029171	147	9·9970829	22
37235	10822	10·9362765	7·8278804	9·0666553	10969	10·9333447	9·9465486	10·0029318	147	9·9970682	21
48057	10795	10·9351943	7·8300522	9·0677522	10943	10·9322478	9·9464066	10·0029465	148	9·9970535	20
58852	10767	10·9341148	7·8322185	9·0688465	10916	10·9311535	9·9462646	10·0029613	148	9·9970387	19
69619	10741	10·9330381	7·8343794	9·0699381	10889	10·9300619	9·9461226	10·0029761	149	9·9970239	18
80360	10714	10·9319640	7·8365349	9·0710270	10863	10·9289730	9·9459806	10·0029910	149	9·9970090	17
91074	10687	10·9308926	7·8386851	9·0721133	10836	10·9278867	9·9458385	10·0030059	149	9·9969941	16
01761	10660	10·9298239	7·8408299	9·0731969	10810	10·9268031	9·9456963	10·0030208	150	9·9969792	15
12421	10634	10·9287579	7·8429695	9·0742779	10784	10·9257221	9·9455541	10·0030358	150	9·9969642	14
23055	10608	10·9276945	7·8451037	9·0753563	10758	10·9246437	9·9454119	10·0030508	150	9·9969492	13
33663	10581	10·9266337	7·8472327	9·0764321	10732	10·9235679	9·9452696	10·0030658	151	9·9969342	12
44244	10555	10·9255756	7·8493565	9·0775053	10707	10·9224947	9·9451273	10·0030809	151	9·9969191	11
54799	10530	10·9245201	7·8514751	9·0785760	10681	10·9214240	9·9449850	10·0030960	152	9·9969040	10
65329	10503	10·9234671	7·8535885	9·0796441	10655	10·9203559	9·9448426	10·0031112	152	9·9968888	9
75832	10478	10·9224168	7·8556967	9·0807096	10630	10·9192904	9·9447001	10·0031264	152	9·9968736	8
86310	10452	10·9213690	7·8577998	9·0817726	10605	10·9182274	9·9445577	10·0031416	153	9·9968584	7
96762	10427	10·9203238	7·8598980	9·0828331	10580	10·9171669	9·9444151	10·0031569	153	9·9968431	6
07189	10401	10·9192811	7·8619910	9·0838911	10555	10·9161089	9·9442726	10·0031722	153	9·9968278	5
17590	10376	10·9182410	7·8640789	9·0849466	10530	10·9150534	9·9441300	10·0031875	154	9·9968125	4
27966	10351	10·9172034	7·8661618	9·0859996	10505	10·9140004	9·9439873	10·0032029	154	9·9967971	3
38317	10326	10·9161683	7·8682397	9·0870501	10480	10·9129499	9·9438446	10·0032183	155	9·9967817	2
48643	10302	10·9151357	7·8703126	9·0880981	10457	10·9119019	9·9437019	10·0032338	155	9·9967662	1
58945		10·9141055	7·8723806	9·0891438		10·9108562	9·9435591	10·0032493		9·9967507	0
ine	Diff.	Secant	Covers.	Cotang.	Diff.	Tang.	Verseds.	Cosec.	D.	Sine	'

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	'
0	1218693	2888	8781307	8·2055090	1227846	8·1443464	1·0075098	0074538	359	9925462	60
1	1221581	2887	8778419	8·1861157	1230798	8·1248071	1·0075459	0074893	356	[illegible]	59
2	1224468	2887	8775532	8·1668145	1233752	8·1053599	1·0075820	0075249	357	9924751	58
3	1227355	2886	8772645	8·1476048	1236705	8·0860042	1·0076182	0075606	[illegible]	9924394	57
4	1230241	2887	8769759	8·1284860	1239658	8·0667394	1·0076545	0075963	358	9924037	56
5	1233128	2887	8766872	8·1094573	1242612	8·0475647	1·0076908	0076321	360	[illegible]	55
6	1236015	2886	8763985	8·0905182	1245566	8·0284796	1·0077273	0076681	360	9923319	54
7	1238901	2887	8761099	8·0716681	1248520	8·0094835	1·0077639	0077041	360	[illegible]	53
8	1241788	2886	8758212	8·0529062	1251474	7·9905756	1·0078005	0077401	362	9922599	52
9	1244674	2886	8755326	8·0342321	1254429	7·9717555	1·0078372	0077763	[illegible]	[illegible]	51
10	1247560	2886	8752440	8·0156450	1257384	7·9530224	1·0078741	0078126	363	[illegible]	50
11	1250446	2886	8749554	7·9971443	1260339	7·9343758	1·0079110	0078489	364	[illegible]	49
12	1253332	2886	8746668	7·9787298	1263294	7·9158151	1·0079480	0078853	365	[illegible]	48
13	1256218	2886	8743782	7·9604003	1266249	7·8973396	1·0079851	0079218	366	[illegible]	47
14	1259104	2886	8740896	7·9421556	1269205	7·8789489	1·0080222	0079584	367	[illegible]	46
15	1261990	2885	8738010	7·9239950	1272161	7·8606423	1·0080595	0079951	[illegible]	[illegible]	45
16	1264875	2886	8735125	7·9059179	1275117	7·8424191	1·0080968	0080318	368	[illegible]	44
17	1267761	2885	8732239	7·8879238	1278073	7·8242790	1·0081343	0080686	370	[illegible]	43
18	1270646	2885	8729354	7·8700120	1281030	7·8062212	1·0081718	0081056	370	[illegible]	42
19	1273531	2885	8726469	7·8521821	1283986	7·7882453	1·0082094	0081426	370	[illegible]	41
20	1276416	2886	8723584	7·8344335	1286943	7·7703506	1·0082471	0081796	372	[illegible]	40
21	1279302	2884	8720698	7·8167656	1289900	7·7525366	1·0082849	0082168	373	[illegible]	39
22	1282186	2885	8717814	7·7991778	1292858	7·7348028	1·0083228	0082541	373	[illegible]	38
23	1285071	2885	8714929	7·7816697	1295815	7·7171486	1·0083607	0082914	374	[illegible]	37
24	1287956	2885	8712044	7·7642406	1298773	7·6995735	1·0083988	0083288	375	[illegible]	36
25	1290841	2884	8709159	7·7468901	1301731	7·6820769	1·0084369	0083663	376	[illegible]	35
26	1293725	2884	8706275	7·7296176	1304690	7·6646584	1·0084752	0084039	377	[illegible]	34
27	1296609	2885	8703391	7·7124227	1307648	7·6473174	1·0085135	0084416	378	[illegible]	33
28	1299494	2884	8700506	7·6953047	1310607	7·6300533	1·0085519	0084794	378	[illegible]	32
29	1302378	2884	8697622	7·6782631	1313566	7·6128657	1·0085904	0085172	379	[illegible]	31
30	1305262	2884	8694738	7·6612976	1316525	7·5957541	1·0086290	0085551	380	[illegible]	30
31	1308146	2884	8691854	7·6444075	1319484	7·5787178	1·0086676	0085931	381	9914069	29
32	1311030	2883	8688970	7·6275923	1322444	7·5617567	1·0087064	0086312	382	[illegible]	28
33	1313913	2884	8686087	7·6108516	1325404	7·5448690	1·0087452	0086694	[illegible]	[illegible]	27
34	1316797	2884	8683203	7·5941849	1328364	7·5280571	1·0087842	0087077	383	[illegible]	26
35	1319681	2883	8680319	7·5775916	1331324	7·5113178	1·0088232	0087460	385	[illegible]	25
36	1322564	2883	8677436	7·5610713	1334285	7·4946514	1·0088623	0087845	385	9912155	24
37	1325447	2883	8674553	7·5446236	1337246	7·4780576	1·0089015	0088230	386	[illegible]	23
38	1328330	2883	8671670	7·5282478	1340207	7·4615357	1·0089408	0088616	387	[illegible]	22
39	1331213	2883	8668787	7·5119437	1343168	7·4450855	1·0089802	0089003	387	[illegible]	21
40	1334096	2883	8665904	7·4957106	1346129	7·4287064	1·0090196	0089390	[illegible]	[illegible]	20
41	1336979	2883	8663021	7·4795482	1349091	7·4123978	1·0090592	0089779	389	[illegible]	19
42	1339862	2882	8660138	7·4634560	1352053	7·3961595	1·0090988	0090168	390	[illegible]	18
43	1342744	2883	8657256	7·4474335	1355015	7·3799909	1·0091386	0090558	391	[illegible]	17
44	1345627	2882	8654373	7·4314803	1357978	7·3638916	1·0091784	0090949	392	[illegible]	16
45	1348509	2883	8651491	7·4155959	1360940	7·3478610	1·0092183	0091341	393	[illegible]	15
46	1351392	2882	8648608	7·3997798	1363903	7·3318989	1·0092583	0091734	393	[illegible]	14
47	1354274	2882	8645726	7·3840318	1366866	7·3160047	1·0092984	0092127	395	[illegible]	13
48	1357156	2882	8642844	7·3683517	1369830	7·3001780	1·0093386	0092522	395	[illegible]	12
49	1360038	2881	8639962	7·3527377	1372793	7·2844184	1·0093788	0092917	396	[illegible]	11
50	1362919	2882	8637081	7·3371909	1375757	7·2687255	1·0094192	0093313	397	[illegible]	10
51	1365801	2882	8634199	7·3217102	1378721	7·2530987	1·0094596	0093710	397	[illegible]	9
52	1368683	2881	8631317	7·3062954	1381685	7·2375378	1·0095001	0094107	399	[illegible]	8
53	1371564	2881	8628436	7·2909460	1384650	7·2220422	1·0095408	0094506	399	[illegible]	7
54	1374445	2882	8625555	7·2756616	1387615	7·2066116	1·0095815	0094905	401	[illegible]	6
55	1377327	2881	8622673	7·2604417	1390580	7·1912456	1·0096224	0095306	401	[illegible]	5
56	1380208	2881	8619792	7·2452859	1393545	7·1759437	1·0096633	0095707	402	[illegible]	4
57	1383089	2881	8616911	7·2301940	1396510	7·1607056	1·0097041	0096109	402	[illegible]	3
58	1385970	2880	8614030	7·2151654	1399476	7·1455308	1·0097452	0096511	404	[illegible]	2
59	1388850	2881	8611150	7·2001996	1402442	7·1304190	1·0097863	0096915	404	[illegible]	1
60	1391731		8608269	7·1852965	1405408	7·1153697	1·0098276	0097319		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	'

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·1435553	8979	10·8564447	7·9881990	9·1478025	9157	10·8521975	9·9349158	10·0042472	178	9·9957528	60
1	9·1444532	8961	10·8555468	7·9900038	9·1487182	9139	10·8512818	9·9347703	10·0042650	178	9·9957350	59
2	9·1453493	8942	10·8546507	7·9918047	9·1496321	9120	10·8503679	9·9346251	10·0042828	179	9·9957172	58
3	9·1462435	8923	10·8537565	7·9936020	9·1505441	9102	10·8494559	9·9344797	10·0043007	178	9·9956993	57
4	9·1471358	8904	10·8528642	7·9953955	9·1514543	9084	10·8485457	9·9343342	10·0043185	180	9·9956815	56
5	9·1480262	8886	10·8519738	7·9971853	9·1523627	9065	10·8476373	9·9341887	10·0043365	179	9·9956635	55
6	9·1489148	8867	10·8510852	7·9989713	9·1532692	9047	10·8467308	9·9340431	10·0043544	180	9·9956456	54
7	9·1498015	8849	10·8501985	8·0007537	9·1541739	9030	10·8458261	9·9338975	10·0043724	181	9·9956276	53
8	9·1506864	8830	10·8493136	8·0025325	9·1550769	9011	10·8449231	9·9337518	10·0043905	180	9·9956095	52
9	9·1515694	8813	10·8484306	8·0043076	9·1559780	8993	10·8440220	9·9336062	10·0044085	181	9·9955915	51
10	9·1524507	8794	10·8475493	8·0060790	9·1568773	8975	10·8431227	9·9334604	10·0044266	182	9·9955734	50
11	9·1533301	8775	10·8466699	8·0078468	9·1577748	8958	10·8422252	9·9333146	10·0044448	182	9·9955552	49
12	9·1542076	8758	10·8457924	8·0096110	9·1586706	8940	10·8413294	9·9331688	10·0044630	182	9·9955370	48
13	9·1550834	8740	10·8449166	8·0113716	9·1595646	8923	10·8404354	9·9330230	10·0044812	183	9·9955188	47
14	9·1559574	8722	10·8440426	8·0131287	9·1604569	8904	10·8395431	9·9328771	10·0044995	183	9·9955005	46
15	9·1568296	8704	10·8431704	8·0148822	9·1613473	8888	10·8386527	9·9327311	10·0045178	183	9·9954822	45
16	9·1577000	8686	10·8423000	8·0166321	9·1622361	8870	10·8377639	9·9325851	10·0045361	184	9·9954639	44
17	9·1585686	8668	10·8414314	8·0183785	9·1631231	8852	10·8368769	9·9324391	10·0045545	184	9·9954455	43
18	9·1594354	8651	10·8405646	8·0201213	9·1640083	8836	10·8359917	9·9322930	10·0045729	184	9·9954271	42
19	9·1603005	8634	10·8396995	8·0218607	9·1648919	8818	10·8351081	9·9321469	10·0045913	185	9·9954087	41
20	9·1611639	8615	10·8388361	8·0235965	9·1657737	8801	10·8342263	9·9320007	10·0046098	185	9·9953902	40
21	9·1620254	8599	10·8379746	8·0253289	9·1666538	8784	10·8333462	9·9318545	10·0046283	186	9·9953717	39
22	9·1628853	8581	10·8371147	8·0270587	9·1675322	8767	10·8324678	9·9317083	10·0046469	186	9·9953531	38
23	9·1637434	8564	10·8362566	8·0287833	9·1684089	8750	10·8315911	9·9315620	10·0046655	186	9·9953345	37
24	9·1645998	8546	10·8354002	8·0305053	9·1692839	8733	10·8307161	9·9314156	10·0046841	187	9·9953159	36
25	9·1654544	8530	10·8345456	8·0322239	9·1701572	8717	10·8298428	9·9312693	10·0047028	187	9·9952972	35
26	9·1663074	8512	10·8336926	8·0339391	9·1710289	8700	10·8289711	9·9311228	10·0047215	188	9·9952785	34
27	9·1671586	8495	10·8328414	8·0356506	9·1718989	8683	10·8281011	9·9309764	10·0047403	188	9·9952597	33
28	9·1680081	8478	10·8319919	8·0373592	9·1727672	8666	10·8272328	9·9308299	10·0047591	188	9·9952409	32
29	9·1688559	8462	10·8311441	8·0390643	9·1736338	8650	10·8263662	9·9306833	10·0047773	188	9·9952221	31
30	9·1697021	8444	10·8302979	8·0407659	9·1744988	8634	10·8255012	9·9305367	10·0047967	189	9·9952033	30
31	9·1705465	8428	10·8294535	8·0424642	9·1753622	8617	10·8246378	9·9303901	10·0048156	190	9·9951844	29
32	9·1713893	8412	10·8286107	8·0441592	9·1762239	8601	10·8237761	9·9302434	10·0048346	190	9·9951654	28
33	9·1722305	8394	10·8277695	8·0458509	9·1770840	8585	10·8229160	9·9300967	10·0048536	190	9·9951464	27
34	9·1730699	8378	10·8269301	8·0475393	9·1779425	8568	10·8220575	9·9299499	10·0048726	190	9·9951274	26
35	9·1739077	8362	10·8260923	8·0492243	9·1787993	8553	10·8212007	9·9298031	10·0048916	191	9·9951084	25
36	9·1747439	8345	10·8252561	8·0509061	9·1796546	8536	10·8203454	9·9296563	10·0049107	191	9·9950893	24
37	9·1755784	8328	10·8244216	8·0525846	9·1805082	8520	10·8194918	9·9295094	10·0049298	192	9·9950702	23
38	9·1764112	8313	10·8235888	8·0542599	9·1813602	8504	10·8186398	9·9293624	10·0049490	192	9·9950510	22
39	9·1772425	8296	10·8227575	8·0559319	9·1822106	8489	10·8177894	9·9292155	10·0049682	192	9·9950318	21
40	9·1780721	8280	10·8219279	8·0576007	9·1830595	8473	10·8169405	9·9290684	10·0049874	193	9·9950126	20
41	9·1789001	8264	10·8210999	8·0592663	9·1839068	8457	10·8160932	9·9289214	10·0050067	193	9·9949933	19
42	9·1797265	8247	10·8202735	8·0609286	9·1847525	8441	10·8152475	9·9287743	10·0050260	194	9·9949740	18
43	9·1805512	8232	10·8194488	8·0625878	9·1855966	8426	10·8144034	9·9286271	10·0050454	194	9·9949546	17
44	9·1813744	8216	10·8186256	8·0642438	9·1864392	8410	10·8135608	9·9284799	10·0050648	194	9·9949352	16
45	9·1821960	8200	10·8178040	8·0658966	9·1872802	8394	10·8127198	9·9283327	10·0050842	194	9·9949158	15
46	9·1830160	8184	10·8169840	8·0675463	9·1881196	8379	10·8118804	9·9281854	10·0051036	195	9·9948964	14
47	9·1838344	8168	10·8161656	8·0691928	9·1889575	8364	10·8110425	9·9280380	10·0051231	196	9·9948769	13
48	9·1846512	8153	10·8153488	8·0708362	9·1897939	8348	10·8102061	9·9278907	10·0051427	196	9·9948573	12
49	9·1854665	8137	10·8145335	8·0724764	9·1906287	8334	10·8093713	9·9277433	10·0051623	196	9·9948377	11
50	9·1862802	8121	10·8137198	8·0741136	9·1914621	8318	10·8085379	9·9275958	10·0051819	196	9·9948181	10
51	9·1870923	8106	10·8129077	8·0757476	9·1922939	8302	10·8077061	9·9274483	10·0052015	197	9·9947985	9
52	9·1879029	8091	10·8120971	8·0773786	9·1931241	8288	10·8068759	9·9273008	10·0052212	197	9·9947788	8
53	9·1887120	8075	10·8112880	8·0790065	9·1939529	8273	10·8060471	9·9271532	10·0052409	198	9·9947591	7
54	9·1895195	8059	10·8104805	8·0806315	9·1947802	8257	10·8052198	9·9270055	10·0052607	198	9·9947393	6
55	9·1903254	8045	10·8096746	8·0822531	9·1956059	8243	10·8043941	9·9268579	10·0052805	198	9·9947195	5
56	9·1911299	8029	10·8088701	8·0838718	9·1964302	8228	10·8035698	9·9267101	10·0053003	199	9·9946997	4
57	9·1919328	8014	10·8080672	8·0854875	9·1972530	8213	10·8027470	9·9265624	10·0053202	199	9·9946798	3
58	9·1927342	7999	10·8072658	8·0871002	9·1980743	8198	10·8019257	9·9264146	10·0053401	200	9·9946599	2
59	9·1935341	7983	10·8064659	8·0887099	9·1988941	8184	10·8011059	9·9262667	10·0053601	200	9·9946399	1
60	9·1943324		10·8056676	8·0903166	9·1997125		10·8002875	9·9261188	10·0053801		9·9946199	0
	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	D	Cosine	′
0	1391731	2880	8608269	7·1852965	1405408	7·1153697	1·0098276	0097319	418	[illegible]	[illegible]
1	1394612	2880	8605388	7·1704335	1408376	7·1003826	1·0098684	0097725	406	[illegible]	[illegible]
2	1397492	2880	8602508	7·1556764	1411342	7·0854573	1·0099113	0098131	407	[illegible]	[illegible]
3	1400372	2880	8599628	7·1409587	1414308	7·0705934	1·0099512	0098538	407	[illegible]	[illegible]
4	1403252	2880	8596748	7·1263019	1417276	7·0557905	1·0099934	0098945	409	[illegible]	[illegible]
5	1406132	2880	8593868	7·1117059	1420243	7·0410482	1·0100351	0099354	409	[illegible]	[illegible]
6	1409012	2880	8590988	7·0971700	1423211	7·0263662	1·0100769	0099765	411	[illegible]	[illegible]
7	1411892	2880	8588108	7·0826941	1426179	7·0117441	1·0101187	0100174	411	[illegible]	[illegible]
8	1414772	2879	8585228	7·0682777	1429147	6·9971806	1·0101607	0100585	412	[illegible]	[illegible]
9	1417651	2880	8582349	7·0539205	1432115	6·9826781	1·0102027	0100997	413	[illegible]	[illegible]
10	1420531	2879	8579469	7·0396220	1435084	6·9682335	1·0102449	0101410	413	[illegible]	[illegible]
11	1423410	2879	8576590	7·0253820	1438053	6·9538473	1·0102871	0101823	415	[illegible]	[illegible]
12	1426289	2879	8573711	7·0112001	1441022	6·9395192	1·0103294	0102238	415	[illegible]	[illegible]
13	1429168	2879	8570832	6·9970760	1443991	6·9252489	1·0103718	0102653	416	[illegible]	[illegible]
14	1432047	2879	8567953	6·9830092	1446961	6·9110359	1·0104143	0103069	417	[illegible]	[illegible]
15	1434926	2879	8565074	6·9689991	1449931	6·8968799	1·0104568	0103486	418	[illegible]	[illegible]
16	1437805	2879	8562195	6·9550464	1452901	6·8827807	1·0104995	0103904	419	[illegible]	[illegible]
17	1440684	2878	8559316	6·9411496	1455872	6·8687378	1·0105422	0104323	419	[illegible]	[illegible]
18	1443562	2878	8556438	6·9273089	1458842	6·8547508	1·0105851	0104742	420	[illegible]	[illegible]
19	1446440	2879	8553560	6·9135239	1461813	6·8408196	1·0106280	0105162	422	[illegible]	[illegible]
20	1449319	2878	8550681	6·8997942	1464784	6·8269437	1·0106710	0105584	422	[illegible]	[illegible]
21	1452197	2878	8547803	6·8861195	1467756	6·8131227	1·0107141	0106006	422	[illegible]	[illegible]
22	1455075	2878	8544925	6·8724995	1470727	6·7993563	1·0107573	0106428	424	[illegible]	[illegible]
23	1457953	2877	8542047	6·8589338	1473699	6·7856446	1·0108006	0106852	425	[illegible]	[illegible]
24	1460830	2878	8539170	6·8454222	1476672	6·7719867	1·0108440	0107277	42[illegible]	[illegible]	[illegible]
25	1463708	2877	8536292	6·8319642	1479644	6·7583826	1·0108875	0107702	427	[illegible]	[illegible]
26	1466585	2878	8533415	6·8185597	1482617	6·7448318	1·0109310	0108128	427	[illegible]	[illegible]
27	1469463	2877	8530537	6·8052082	1485590	6·7313341	1·0109747	0108555	428	[illegible]	[illegible]
28	1472340	2877	8527660	6·7919095	1488563	6·7178891	1·0110184	0108983	429	[illegible]	[illegible]
29	1475217	2877	8524783	6·7786632	1491536	6·7044966	1·0110622	0109412	429	[illegible]	[illegible]
30	1478094	2877	8521906	6·7654691	1494510	6·6911562	1·0111061	0109841	431	[illegible]	[illegible]
31	1480971	2877	8519029	6·7523268	1497484	6·6778677	1·0111501	0110272	431	[illegible]	[illegible]
32	1483848	2876	8516152	6·7392360	1500458	6·6646307	1·0111942	0110703	432	[illegible]	[illegible]
33	1486724	2877	8513276	6·7261965	1503433	6·6514449	1·0112384	0111135	433	[illegible]	[illegible]
34	1489601	2876	8510399	6·7132079	1506408	6·6383100	1·0112827	0111568	434	[illegible]	[illegible]
35	1492477	2876	8507523	6·7002699	1509383	6·6252258	1·0113270	0112002	434	[illegible]	[illegible]
36	1495353	2877	8504647	6·6873822	1512358	6·6121919	1·0113715	0112436	435	[illegible]	[illegible]
37	1498230	2876	8501770	6·6745446	1515333	6·5992080	1·0114160	0112872	436	[illegible]	[illegible]
38	1501106	2875	8498894	6·6617568	1518309	6·5862739	1·0114606	0113308	437	[illegible]	[illegible]
39	1503981	2876	8496019	6·6490184	1521285	6·5733892	1·0115054	0113745	438	[illegible]	[illegible]
40	1506857	2876	8493143	6·6363293	1524262	6·5605538	1·0115502	0114183	439	[illegible]	[illegible]
41	1509733	2875	8490267	6·6236890	1527238	6·5477672	1·0115951	0114622	439	[illegible]	[illegible]
42	1512608	2876	8487392	6·6110973	1530215	6·5350293	1·0116400	0115061	441	[illegible]	[illegible]
43	1515484	2875	8484516	6·5985540	1533192	6·5223396	1·0116851	0115502	441	[illegible]	[illegible]
44	1518359	2875	8481641	6·5860587	1536170	6·5096981	1·0117303	0115943	442	[illegible]	[illegible]
45	1521234	2875	8478766	6·5736112	1539147	6·4971043	1·0117755	0116385	443	[illegible]	[illegible]
46	1524109	2875	8475891	6·5612113	1542125	6·4845581	1·0118209	0116828	444	[illegible]	[illegible]
47	1526984	2874	8473016	6·5488586	1545104	6·4720591	1·0118663	0117272	444	[illegible]	[illegible]
48	1529858	2875	8470142	6·5365528	1548082	6·4596070	1·0119118	0117716	445	[illegible]	[illegible]
49	1532733	2874	8467267	6·5242938	1551061	6·4472017	1·0119575	0118162	446	[illegible]	[illegible]
50	1535607	2875	8464393	6·5120812	1554040	6·4348428	1·0120032	0118608	447	[illegible]	[illegible]
51	1538482	2874	8461518	6·4999148	1557019	6·4225301	1·0120489	0119055	448	[illegible]	[illegible]
52	1541356	2874	8458644	6·4877944	1559998	6·4102633	1·0120948	0119503	449	[illegible]	[illegible]
53	1544230	2874	8455770	6·4757195	1562978	6·3980422	1·0121408	0119952	449	[illegible]	[illegible]
54	1547104	2874	8452896	6·4636901	1565958	6·3858665	1·0121869	0120401	451	[illegible]	[illegible]
55	1549978	2873	8450022	6·4517059	1568939	6·3737359	1·0122330	0120852	451	[illegible]	[illegible]
56	1552851	2874	8447149	6·4397666	1571919	6·3616502	1·0122793	0121303	45[illegible]	[illegible]	[illegible]
57	1555725	2873	8444275	6·4278719	1574900	6·3496092	1·0123256	0121756	45[illegible]	[illegible]	[illegible]
58	1558598	2874	8441402	6·4160216	1577881	6·3376126	1·0123720	0122208	[illegible]	[illegible]	[illegible]
59	1561472	2873	8438528	6·4042154	1580863	6·3256601	1·0124185	0122662	[illegible]	[illegible]	[illegible]
60	1564345		8435655	6·3924532	1583844	6·3137515	1·0124651	0123117	[illegible]	[illegible]	[illegible]
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·1943324	7969	10·8056676	8·0903166	9·1997125	8163	10·8002875	9·9261188	10·0053801	200	9·9946199	60
1	9·1951293	7954	10·8048707	8·0919204	9·2005294	8155	10·7994706	9·9259709	10·0054001	201	9·9945999	59
2	9·1959247	7939	10·8040753	8·0935210	9·2013449	8139	10·7986551	9·9258229	10·0054202	201	9·9945798	58
3	9·1967186	7924	10·8032814	8·0951186	9·2021588	8126	10·7978412	9·9256749	10·0054403	201	9·9945597	57
4	9·1975110	7909	10·8024890	8·0967130	9·2029714	8111	10·7970286	9·9255268	10·0054604	202	9·9945396	56
5	9·1983019	7894	10·8016981	8·0983055	9·2037825	8097	10·7962175	9·9253787	10·0054806	202	9·9945194	55
6	9·1990913	7880	10·8009087	8·0998944	9·2045922	8082	10·7954078	9·9252306	10·0055008	203	9·9944992	54
7	9·1998793	7865	10·8001207	8·1014804	9·2054004	8068	10·7945996	9·9250824	10·0055211	202	9·9944789	53
8	9·2006658	7851	10·7993342	8·1030635	9·2062072	8054	10·7937928	9·9249341	10·0055413	204	9·9944587	52
9	9·2014509	7836	10·7985491	8·1046437	9·2070126	8039	10·7929874	9·9247858	10·0055617	203	9·9944383	51
10	9·2022345	7822	10·7977655	8·1062211	9·2078165	8026	10·7921835	9·9246375	10·0055820	205	9·9944180	50
11	9·2030167	7807	10·7969833	8·1077955	9·2086191	8012	10·7913809	9·9244891	10·0056025	204	9·9943975	49
12	9·2037974	7792	10·7962026	8·1093671	9·2094203	7997	10·7905797	9·9243407	10·0056229	205	9·9943771	48
13	9·2045766	7779	10·7954234	8·1109358	9·2102200	7984	10·7897800	9·9241922	10·0056434	205	9·9943566	47
14	9·2053545	7764	10·7946455	8·1125017	9·2110184	7969	10·7889816	9·9240437	10·0056639	205	9·9943361	46
15	9·2061309	7750	10·7938691	8·1140647	9·2118153	7956	10·7881847	9·9238952	10·0056844	206	9·9943156	45
16	9·2069059	7736	10·7930941	8·1156249	9·2126109	7942	10·7873891	9·9237466	10·0057050	207	9·9942950	44
17	9·2076795	7721	10·7923205	8·1171823	9·2134051	7929	10·7865949	9·9235980	10·0057257	206	9·9942743	43
18	9·2084516	7708	10·7915484	8·1187369	9·2141980	7914	10·7858020	9·9234493	10·0057463	207	9·9942537	42
19	9·2092224	7693	10·7907776	8·1202887	9·2149894	7901	10·7850106	9·9233006	10·0057670	208	9·9942330	41
20	9·2099917	7680	10·7900083	8·1218377	9·2157795	7888	10·7842205	9·9231518	10·0057878	208	9·9942122	40
21	9·2107597	7666	10·7892403	8·1233840	9·2165683	7873	10·7834317	9·9230030	10·0058086	208	9·9941914	39
22	9·2115263	7651	10·7884737	8·1249274	9·2173556	7861	10·7826444	9·9228541	10·0058294	208	9·9941706	38
23	9·2122914	7638	10·7877086	8·1264681	9·2181417	7847	10·7818583	9·9227052	10·0058502	209	9·9941498	37
24	9·2130552	7624	10·7869448	8·1280061	9·2189264	7833	10·7810736	9·9225563	10·0058711	210	9·9941289	36
25	9·2138176	7611	10·7861824	8·1295413	9·2197097	7820	10·7802903	9·9224073	10·0058921	209	9·9941079	35
26	9·2145787	7597	10·7854213	8·1310738	9·2204917	7807	10·7795083	9·9222583	10·0059130	211	9·9940870	34
27	9·2153384	7583	10·7846616	8·1326036	9·2212724	7794	10·7787276	9·9221092	10·0059341	210	9·9940659	33
28	9·2160967	7569	10·7839033	8·1341307	9·2220518	7780	10·7779482	9·9219601	10·0059551	211	9·9940449	32
29	9·2168536	7556	10·7831464	8·1356551	9·2228298	7767	10·7771702	9·9218109	10·0059762	211	9·9940238	31
30	9·2176092	7543	10·7823908	8·1371768	9·2236065	7754	10·7763935	9·9216617	10·0059973	212	9·9940027	30
31	9·2183635	7529	10·7816365	8·1386958	9·2243819	7742	10·7756181	9·9215125	10·0060185	212	9·9939815	29
32	9·2191164	7516	10·7808836	8·1402121	9·2251561	7728	10·7748439	9·9213632	10·0060397	212	9·9939603	28
33	9·2198680	7502	10·7801320	8·1417258	9·2259289	7715	10·7740711	9·9212138	10·0060609	213	9·9939391	27
34	9·2206182	7489	10·7793818	8·1432368	9·2267004	7702	10·7732996	9·9210644	10·0060822	213	9·9939178	26
35	9·2213671	7476	10·7786329	8·1447452	9·2274706	7689	10·7725294	9·9209150	10·0061035	213	9·9938965	25
36	9·2221147	7462	10·7778853	8·1462510	9·2282395	7676	10·7717605	9·9207656	10·0061248	214	9·9938752	24
37	9·2228609	7450	10·7771391	8·1477541	9·2290071	7664	10·7709929	9·9206160	10·0061462	214	9·9938538	23
38	9·2236059	7436	10·7763941	8·1492546	9·2297735	7651	10·7702265	9·9204665	10·0061676	215	9·9938324	22
39	9·2243495	7423	10·7756505	8·1507525	9·2305386	7638	10·7694614	9·9203169	10·0061891	215	9·9938109	21
40	9·2250918	7410	10·7749082	8·1522479	9·2313024	7626	10·7686976	9·9201672	10·0062106	215	9·9937894	20
41	9·2258328	7397	10·7741672	8·1537405	9·2320650	7612	10·7679350	9·9200175	10·0062321	216	9·9937679	19
42	9·2265725	7385	10·7734275	8·1552307	9·2328262	7601	10·7671738	9·9198678	10·0062537	216	9·9937463	18
43	9·2273110	7371	10·7726890	8·1567182	9·2335863	7588	10·7664137	9·9197180	10·0062753	217	9·9937247	17
44	9·2280481	7358	10·7719519	8·1582032	9·2343451	7575	10·7656549	9·9195682	10·0062970	217	9·9937030	16
45	9·2287839	7346	10·7712161	8·1596857	9·2351026	7563	10·7648974	9·9194183	10·0063187	217	9·9936813	15
46	9·2295185	7333	10·7704815	8·1611656	9·2358589	7550	10·7641411	9·9192684	10·0063404	218	9·9936596	14
47	9·2302518	7320	10·7697482	8·1626430	9·2366139	7539	10·7633861	9·9191185	10·0063622	218	9·9936378	13
48	9·2309838	7307	10·7690162	8·1641178	9·2373678	7525	10·7626322	9·9189685	10·0063840	218	9·9936160	12
49	9·2317145	7295	10·7682855	8·1655902	9·2381203	7514	10·7618797	9·9188184	10·0064058	219	9·9935942	11
50	9·2324440	7282	10·7675560	8·1670600	9·2388717	7501	10·7611283	9·9186683	10·0064277	219	9·9935723	10
51	9·2331722	7270	10·7668278	8·1685273	9·2396218	7490	10·7603782	9·9185182	10·0064496	219	9·9935504	9
52	9·2338992	7257	10·7661008	8·1699921	9·2403708	7477	10·7596292	9·9183680	10·0064715	220	9·9935285	8
53	9·2346249	7245	10·7653751	8·1714545	9·2411185	7465	10·7588815	9·9182178	10·0064935	221	9·9935065	7
54	9·2353494	7232	10·7646506	8·1729144	9·2418650	7453	10·7581350	9·9180675	10·0065156	220	9·9934844	6
55	9·2360726	7220	10·7639274	8·1743718	9·2426103	7440	10·7573897	9·9179172	10·0065376	221	9·9934624	5
56	9·2367946	7207	10·7632054	8·1758267	9·2433543	7429	10·7566457	9·9177669	10·0065597	222	9·9934403	4
57	9·2375153	7196	10·7624847	8·1772792	9·2440972	7417	10·7559028	9·9176165	10·0065819	222	9·9934181	3
58	9·2382349	7184	10·7617651	8·1787292	9·2448389	7405	10·7551611	9·9174660	10·0066041	222	9·9933959	2
59	9·2389532	7170	10·7610468	8·1801768	9·2455794	7394	10·7544206	9·9173155	10·0066263	222	9·9933737	1
60	9·2396702		10·7603298	8·1816220	9·2463188		10·7536812	9·9171650	10·0066485		9·9933515	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D	Cosine	′
0	[illegible]		[illegible]	6·3924532	1583244	[illegible]	1·0124651	0123117		[illegible]	60
1	[illegible]	2873	[illegible]	6·3807147	1586826	[illegible]	1·0125118	0123572	455	9876428	59
2	[illegible]		8429909	6·3690541	1589809	6·2900651	1·0125586	[illegible]	456	9875972	58
3	[illegible]		8427037	6·3574276	1592791	6·2782868	1·0126055	0124486	458	9875514	57
4	[illegible]		[illegible]	[illegible]	1595774	[illegible]	[illegible]	[illegible]	457	9875057	56
5	[illegible]		8421292	6·3342923	[illegible]	6·2548589	1·0126995	0125402	459	9874598	55
6	[illegible]	2872	[illegible]	[illegible]	[illegible]	[illegible]	1·0127466	0125862	460	9874138	54
7	[illegible]		[illegible]	6·3113269	[illegible]	6·2316007	1·0127939	0126322	460	[illegible]	53
8	[illegible]	2872	[illegible]	[illegible]	[illegible]	6·2200347	1·0128412	[illegible]	462	9873216	52
9	[illegible]	2872	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0127246	462	9872754	51
10	[illegible]	2872	[illegible]	[illegible]	1613677	6·1970279	1·0129361	0127709	463	9872291	50
11	[illegible]	2871	8404060	6·2658984	[illegible]	[illegible]	1·0129837	0128173	464	[illegible]	49
12	[illegible]	2872	8401188	6·2546446	1619547	6·1741866	1·0130314	0128637	464	9871363	48
13	[illegible]	2871	8398317	6·2434316	[illegible]	6·1628272	1·0130791	0129103	466	9870897	47
14	1604555	2872	[illegible]	6·2322594	[illegible]	6·1515085	1·0131270	0129569	466	9870431	46
15	1607426	2871	8392574	6·2211275	1628603	6·1402303	1·0131750	[illegible]	467	[illegible]	45
16	1610297	2871	[illegible]	6·2100359	1631590	6·1289923	1·0132230	[illegible]	467	[illegible]	44
17	[illegible]	2870	[illegible]	6·1989811	1634576	6·1177944	1·0132711	0130974	469	[illegible]	43
18	1616038	2871	[illegible]	6·1879725	1637563	6·1066360	1·0133194	0131443	470	[illegible]	42
19	1618909	2871	[illegible]	6·1770007	[illegible]	6·0955174	1·0133677	[illegible]	470	9868087	41
20	1621779	2870	[illegible]	6·1660674	[illegible]	6·0844381	1·0134161	0132385	472	9867615	40
21	1624650	2871	8375350	[illegible]	[illegible]	6·0733979	1·0134646	[illegible]	472	9867141	39
22	1627520	2870	[illegible]	6·1443189	1649513	6·0623967	1·0135132	[illegible]	471	[illegible]	38
23	1630390	2870	8369610	6·1335028	1652501	[illegible]	1·0135618	0133804	474	9866196	37
24	[illegible]	2870	8366740	6·1227253	1655489	6·0405103	1·0136106	0134278	474	9865722	36
25	[illegible]	2869	8363871	6·1119861	1658478	6·0296247	[illegible]	[illegible]	476	9865246	35
26	[illegible]	2870	8361001	6·1012850	1661467	6·0187772	[illegible]	0135230	476	9864770	34
27	[illegible]	2869	[illegible]	[illegible]	1664456	[illegible]	1·0137574	0135707	477	[illegible]	33
28	[illegible]	2870	[illegible]	[illegible]	[illegible]	5·9971957	[illegible]	[illegible]	478	[illegible]	32
29	1647607	2869	[illegible]	[illegible]	1670436	[illegible]	[illegible]	[illegible]	479	[illegible]	31
30	1650476	2869	[illegible]	[illegible]	1673426	5·9757644	1·0139051	0137144	480	[illegible]	30
31	[illegible]	2868	[illegible]	[illegible]	1676417	[illegible]	[illegible]	[illegible]	481	[illegible]	29
32	[illegible]	2868	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0138106	481	[illegible]	28
33	[illegible]	2869	[illegible]	6·0274282	[illegible]	[illegible]	[illegible]	0138588	482	[illegible]	27
34	1661951	2868	[illegible]	6·0170250	[illegible]	[illegible]	[illegible]	[illegible]	483	[illegible]	26
35	1664819	2868	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	484	[illegible]	25
36	1667687	2869	8332313	5·9963274	1691373	[illegible]	[illegible]	[illegible]	485	[illegible]	24
37	1670556	2867	8329444	5·9860326	[illegible]	[illegible]	[illegible]	[illegible]	486	9859475	23
38	[illegible]	2868	8326577	5·9757737	[illegible]	[illegible]	[illegible]	0141012	487	[illegible]	22
39	1676291	2868	8323709	[illegible]	1700351	[illegible]	1·0143530	0141499	488	[illegible]	21
40	[illegible]	2867	[illegible]	5·9553625	1703344	5·8708042	1·0144032	0141987	489	[illegible]	20
41	1682026	2868	[illegible]	[illegible]	1706338	[illegible]	1·0144535	0142476	489	9857524	19
42	1684894	2867	[illegible]	[illegible]	1709331	[illegible]	1·0145039	0142965	491	9857035	18
43	1687761	2867	[illegible]	[illegible]	1712325	[illegible]	1·0145544	0143456	491	[illegible]	17
44	[illegible]	2867	[illegible]	[illegible]	1715320	[illegible]	[illegible]	[illegible]	492	[illegible]	16
45	[illegible]	2867	[illegible]	[illegible]	[illegible]	5·8193572	[illegible]	0144439	493	[illegible]	15
46	[illegible]	2866	[illegible]	[illegible]	[illegible]	[illegible]	1·0147064	0144932	494	[illegible]	14
47	[illegible]	2867	8300772	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	494	[illegible]	13
48	[illegible]	2866	[illegible]	[illegible]	1727300	[illegible]	[illegible]	[illegible]	495	[illegible]	12
49	1704961	2867	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	496	[illegible]	11
50	[illegible]	2866	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	496	[illegible]	10
51	[illegible]	2866	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	497	[illegible]	9
52	1713560	2865	[illegible]	[illegible]	[illegible]	5·7494889	1·0150129	[illegible]	498	[illegible]	8
53	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	499	[illegible]	7
54	1719291		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0148907	500	9851093	6
55	[illegible]		[illegible]	[illegible]	1748277	[illegible]	1·0151673	0149407	500	[illegible]	5
56	[illegible]		[illegible]	5·7970280	[illegible]	[illegible]	[illegible]	[illegible]	502	9850091	4
57	[illegible]		[illegible]	5·7874153	[illegible]	[illegible]	[illegible]	0150411	502	[illegible]	3
58	[illegible]		[illegible]	5·7778350	1757272	[illegible]	[illegible]	[illegible]	503	[illegible]	2
59	[illegible]		[illegible]	[illegible]	1760271	[illegible]	[illegible]	[illegible]	504	[illegible]	1
60	[illegible]	2866	[illegible]	[illegible]	1763270	[illegible]	[illegible]	[illegible]	504	[illegible]	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·1943324	7969	10·8056676	8·0903166	9·1997125	8169	10·8002875	9·9261188	10·0053801	200	9·9946199	60
1	9·1951293	7954	10·8048707	8·0919203	9·2005294	8155	10·7994706	9·9259709	10·0054001	201	9·9945999	59
2	9·1959247	7939	10·8040753	8·0935210	9·2013449	8139	10·7986551	9·9258229	10·0054202	201	9·9945798	58
3	9·1967186	7924	10·8032814	8·0951188	9·2021588	8126	10·7978412	9·9256749	10·0054403	201	9·9945597	57
4	9·1975110	7909	10·8024890	8·0967136	9·2029714	8111	10·7970286	9·9255268	10·0054604	202	9·9945396	56
5	9·1983019	7894	10·8016981	8·0983055	9·2037825	8097	10·7962175	9·9253787	10·0054806	202	9·9945194	55
6	9·1990913	7880	10·8009087	8·0998944	9·2045922	8082	10·7954078	9·9252306	10·0055008	203	9·9944992	54
7	9·1998793	7865	10·8001207	8·1014804	9·2054004	8068	10·7945996	9·9250824	10·0055211	202	9·9944789	53
8	9·2006658	7851	10·7993342	8·1030635	9·2062072	8054	10·7937928	9·9249341	10·0055413	204	9·9944587	52
9	9·2014509	7836	10·7985491	8·1046437	9·2070126	8039	10·7929874	9·9247858	10·0055617	203	9·9944383	51
10	9·2022345	7822	10·7977655	8·1062211	9·2078165	8026	10·7921835	9·9246375	10·0055820	205	9·9944180	50
11	9·2030167	7807	10·7969833	8·1077955	9·2086191	8012	10·7913809	9·9244891	10·0056025	204	9·9943975	49
12	9·2037974	7792	10·7962026	8·1093671	9·2094203	7997	10·7905797	9·9243407	10·0056229	205	9·9943771	48
13	9·2045766	7779	10·7954234	8·1109358	9·2102200	7984	10·7897800	9·9241922	10·0056434	205	9·9943566	47
14	9·2053545	7764	10·7946455	8·1125017	9·2110184	7969	10·7889816	9·9240437	10·0056639	205	9·9943361	46
15	9·2061309	7750	10·7938691	8·1140647	9·2118153	7956	10·7881847	9·9238952	10·0056844	206	9·9943156	45
16	9·2069059	7736	10·7930941	8·1156249	9·2126109	7942	10·7873891	9·9237466	10·0057050	207	9·9942950	44
17	9·2076795	7721	10·7923205	8·1171823	9·2134051	7929	10·7865949	9·9235980	10·0057257	206	9·9942743	43
18	9·2084516	7708	10·7915484	8·1187369	9·2141980	7914	10·7858020	9·9234493	10·0057463	207	9·9942537	42
19	9·2092224	7693	10·7907776	8·1202887	9·2149894	7901	10·7850106	9·9233006	10·0057670	208	9·9942330	41
20	9·2099917	7680	10·7900083	8·1218377	9·2157795	7888	10·7842205	9·9231518	10·0057878	208	9·9942122	40
21	9·2107597	7666	10·7892403	8·1233840	9·2165683	7873	10·7834317	9·9230030	10·0058086	208	9·9941914	39
22	9·2115263	7651	10·7884737	8·1249274	9·2173556	7861	10·7826444	9·9228541	10·0058294	208	9·9941706	38
23	9·2122914	7638	10·7877086	8·1264681	9·2181417	7847	10·7818583	9·9227052	10·0058502	209	9·9941498	37
24	9·2130552	7624	10·7869448	8·1280061	9·2189264	7833	10·7810736	9·9225563	10·0058711	210	9·9941289	36
25	9·2138176	7611	10·7861824	8·1295413	9·2197097	7820	10·7802903	9·9224073	10·0058921	209	9·9941079	35
26	9·2145787	7597	10·7854213	8·1310738	9·2204917	7807	10·7795083	9·9222583	10·0059130	211	9·9940870	34
27	9·2153384	7583	10·7846616	8·1326036	9·2212724	7794	10·7787276	9·9221092	10·0059341	210	9·9940659	33
28	9·2160967	7569	10·7839033	8·1341307	9·2220518	7780	10·7779482	9·9219601	10·0059551	211	9·9940449	32
29	9·2168536	7556	10·7831464	8·1356551	9·2228298	7767	10·7771702	9·9218109	10·0059762	211	9·9940238	31
30	9·2176092	7543	10·7823908	8·1371768	9·2236065	7754	10·7763935	9·9216617	10·0059973	212	9·9940027	30
31	9·2183635	7529	10·7816365	8·1386958	9·2243819	7742	10·7756181	9·9215125	10·0060185	212	9·9939815	29
32	9·2191164	7516	10·7808836	8·1402121	9·2251561	7728	10·7748439	9·9213632	10·0060397	212	9·9939603	28
33	9·2198680	7502	10·7801320	8·1417258	9·2259289	7715	10·7740711	9·9212138	10·0060609	213	9·9939391	27
34	9·2206182	7489	10·7793818	8·1432368	9·2267004	7702	10·7732996	9·9210644	10·0060822	213	9·9939178	26
35	9·2213671	7476	10·7786329	8·1447452	9·2274706	7689	10·7725294	9·9209150	10·0061035	213	9·9938965	25
36	9·2221147	7462	10·7778853	8·1462510	9·2282395	7676	10·7717605	9·9207656	10·0061248	214	9·9938752	24
37	9·2228609	7450	10·7771391	8·1477541	9·2290071	7664	10·7709929	9·9206160	10·0061462	214	9·9938538	23
38	9·2236059	7436	10·7763941	8·1492546	9·2297735	7651	10·7702265	9·9204665	10·0061676	215	9·9938324	22
39	9·2243495	7423	10·7756505	8·1507525	9·2305386	7638	10·7694614	9·9203169	10·0061891	215	9·9938109	21
40	9·2250918	7410	10·7749082	8·1522478	9·2313024	7626	10·7686976	9·9201672	10·0062106	215	9·9937894	20
41	9·2258328	7397	10·7741672	8·1537405	9·2320650	7612	10·7679350	9·9200175	10·0062321	216	9·9937679	19
42	9·2265725	7385	10·7734275	8·1552307	9·2328262	7601	10·7671738	9·9198678	10·0062537	216	9·9937463	18
43	9·2273110	7371	10·7726890	8·1567182	9·2335863	7588	10·7664137	9·9197180	10·0062753	217	9·9937247	17
44	9·2280481	7358	10·7719519	8·1582032	9·2343451	7575	10·7656549	9·9195682	10·0062970	217	9·9937030	16
45	9·2287839	7346	10·7712161	8·1596857	9·2351026	7563	10·7648974	9·9194183	10·0063187	217	9·9936813	15
46	9·2295185	7332	10·7704815	8·1611656	9·2358589	7550	10·7641411	9·9192684	10·0063404	218	9·9936596	14
47	9·2302517	7320	10·7697483	8·1626436	9·2366139	7539	10·7633861	9·9191185	10·0063622	218	9·9936378	13
48	9·2309838	7307	10·7690162	8·1641172	9·2373678	7525	10·7626322	9·9189685	10·0063840	218	9·9936160	12
49	9·2317145	7295	10·7682855	8·1655902	9·2381203	7514	10·7618797	9·9188184	10·0064058	219	9·9935942	11
50	9·2324440	7282	10·7675560	8·1670600	9·2388717	7501	10·7611283	9·9186683	10·0064277	219	9·9935723	10
51	9·2331722	7270	10·7668278	8·1685273	9·2396218	7490	10·7603782	9·9185182	10·0064496	219	9·9935504	9
52	9·2338992	7257	10·7661008	8·1699921	9·2403708	7477	10·7596292	9·9183680	10·0064715	220	9·9935285	8
53	9·2346249	7245	10·7653751	8·1714545	9·2411185	7465	10·7588815	9·9182178	10·0064935	221	9·9935065	7
54	9·2353494	7232	10·7646506	8·1729144	9·2418650	7453	10·7581350	9·9180675	10·0065156	220	9·9934844	6
55	9·2360726	7220	10·7639274	8·1743718	9·2426103	7440	10·7573897	9·9179172	10·0065376	221	9·9934624	5
56	9·2367946	7207	10·7632054	8·1758267	9·2433543	7429	10·7566457	9·9177669	10·0065597	222	9·9934403	4
57	9·2375153	7196	10·7624847	8·1772792	9·2440972	7417	10·7559028	9·9176165	10·0065819	222	9·9934181	3
58	9·2382349	7183	10·7617651	8·1787292	9·2448389	7405	10·7551611	9·9174660	10·0066041	222	9·9933959	2
59	9·2389532	7170	10·7610468	8·1801768	9·2455794	7394	10·7544206	9·9173155	10·0066263	222	9·9933737	1
60	9·2396702		10·7603298	8·1816220	9·2463188		10·7536812	9·9171650	10·0066485		9·9933515	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	′
0	1736482	2864	8263518	5·7587705	1763270	5·6712818	1·0154266	0151922	506	9848078	60
1	1739346	2865	8260654	5·7492861	1766269	5·6616509	1·0154787	0152428	506	9847572	59
2	1742211	2864	8257789	5·7398333	1769269	5·6520516	1·0155310	0152934	508	9847066	58
3	1745075	2864	8254925	5·7304127	1772269	5·6424838	1·0155833	0153442	508	9846558	57
4	1747939	2864	8252061	5·7210242	1775270	5·6329474	1·0156357	0153950	508	9846050	56
5	1750803	2864	8249197	5·7116636	1778270	5·6234421	1·0156882	0154458	510	9845542	55
6	1753667	2864	8246333	5·7023360	1781271	5·6139680	1·0157408	0154968	511	9845032	54
7	1756531	2864	8243469	5·6930390	1784273	5·6045247	1·0157934	0155479	511	9844521	53
8	1759395	2863	8240605	5·6837734	1787274	5·5951121	1·0158462	0155990	512	9844010	52
9	1762258	2863	8237742	5·6745380	1790276	5·5857302	1·0158991	0156502	513	9843498	51
10	1765121	2863	8234879	5·6653331	1793279	5·5763786	1·0159520	0157016	514	9842985	50
11	1767984	2863	8232016	5·6561584	1796281	5·5670574	1·0160050	0157529	515	9842471	49
12	1770847	2863	8229153	5·6470140	1799284	5·5577663	1·0160582	0158044	515	9841956	48
13	1773710	2863	8226290	5·6378992	1802287	5·5485052	1·0161114	0158559	517	9841441	47
14	1776573	2862	8223427	5·6288148	1805291	5·5392740	1·0161647	0159076	517	9840924	46
15	1779435	2863	8220565	5·6197599	1808295	5·5300724	1·0162181	0159593	518	9840407	45
16	1782298	2862	8217702	5·6107343	1811299	5·5209005	1·0162716	0160111	519	9839889	44
17	1785160	2862	8214840	5·6017386	1814303	5·5117579	1·0163252	0160630	520	9839370	43
18	1788022	2862	8211978	5·5927719	1817308	5·5026446	1·0163789	0161150	520	9838850	42
19	1790884	2862	8209116	5·5838343	1820313	5·4935604	1·0164327	0161670	522	9838330	41
20	1793746	2861	8206254	5·5749258	1823319	5·4845052	1·0164865	0162192	522	9837808	40
21	1796607	2862	8203393	5·5660460	1826324	5·4754788	1·0165405	0162714	523	9837286	39
22	1799469	2861	8200531	5·5571951	1829330	5·4664812	1·0165946	0163237	524	9836763	38
23	1802330	2861	8197670	5·5483726	1832337	5·4575121	1·0166487	0163761	524	9836239	37
24	1805191	2861	8194809	5·5395786	1835344	5·4485715	1·0167029	0164285	526	9835715	36
25	1808052	2861	8191948	5·5308129	1838350	5·4396592	1·0167573	0164811	526	9835189	35
26	1810913	2861	8189087	5·5220754	1841358	5·4307750	1·0168117	0165337	527	9834663	34
27	1813774	2861	8186226	5·5133659	1844365	5·4219188	1·0168662	0165864	528	9834136	33
28	1816634	2860	8183365	5·5046843	1847372	5·4130906	1·0169208	0166392	529	9833608	32
29	1819495	2860	8180505	5·4960305	1850382	5·4042901	1·0169755	0166921	530	9833079	31
30	1822355	2860	8177645	5·4874043	1853390	5·3955172	1·0170303	0167451	530	9832549	30
31	1825215	2860	8174785	5·4788056	1856399	5·3867718	1·0170851	0167981	532	9832019	29
32	1828075	2860	8171925	5·4702342	1859409	5·3780538	1·0171401	0168513	532	9831487	28
33	1830935	2860	8169065	5·4616901	1862418	5·3693630	1·0171952	0169045	533	9830955	27
34	1833795	2859	8166205	5·4531731	1865428	5·3606993	1·0172503	0169578	534	9830422	26
35	1836654	2860	8163346	5·4446831	1868439	5·3520626	1·0173056	0170112	534	9829888	25
36	1839514	2859	8160486	5·4362199	1871449	5·3434527	1·0173609	0170647	535	9829353	24
37	1842373	2859	8157627	5·4277835	1874460	5·3348696	1·0174163	0171182	536	9828818	23
38	1845232	2859	8154768	5·4193737	1877471	5·3263131	1·0174719	0171718	538	9828282	22
39	1848091	2858	8151909	5·4109903	1880483	5·3177830	1·0175275	0172256	538	9827744	21
40	1850949	2859	8149051	5·4026333	1883495	5·3092793	1·0175832	0172794	538	9827206	20
41	1853808	2858	8146192	5·3943026	1886507	5·3008018	1·0176390	0173332	540	9826668	19
42	1856666	2858	8143334	5·3859979	1889520	5·2923505	1·0176948	0173872	541	9826128	18
43	1859524	2858	8140476	5·3777192	1892533	5·2839251	1·0177509	0174413	541	9825587	17
44	1862382	2858	8137618	5·3694664	1895546	5·2755255	1·0178069	0174954	542	9825046	16
45	1865240	2858	8134760	5·3612393	1898559	5·2671517	1·0178631	0175496	543	9824504	15
46	1868098	2858	8131902	5·3530379	1901573	5·2588035	1·0179194	0176039	544	9823961	14
47	1870956	2857	8129044	5·3448620	1904587	5·2504809	1·0179757	0176583	544	9823417	13
48	1873813	2857	8126187	5·3367114	1907602	5·2421836	1·0180321	0177127	546	9822873	12
49	1876670	2858	8123330	5·3285861	1910617	5·2339116	1·0180887	0177673	546	9822327	11
50	1879528	2857	8120472	5·3204860	1913632	5·2256647	1·0181453	0178219	547	9821781	10
51	1882385	2856	8117615	5·3124109	1916648	5·2174428	1·0182020	0178766	548	9821234	9
52	1885241	2857	8114759	5·3043608	1919664	5·2092459	1·0182588	0179314	549	9820686	8
53	1888098	2856	8111902	5·2963355	1922680	5·2010738	1·0183158	0179863	550	9820137	7
54	1890954	2857	8109046	5·2883347	1925697	5·1929264	1·0183728	0180413	550	9819587	6
55	1893811	2856	8106189	5·2803587	1928713	5·1848035	1·0184298	0180963	552	9819037	5
56	1896667	2856	8103333	5·2724070	1931731	5·1767051	1·0184870	0181515	552	9818485	4
57	1899523	2856	8100477	5·2644797	1934748	5·1686311	1·0185443	0182067	553	9817933	3
58	1902379	2855	8097621	5·2565766	1937766	5·1605813	1·0186017	0182620	554	9817380	2
59	1905234	2856	8094766	5·2486976	1940784	5·1525557	1·0186591	0183174	554	9816826	1
60	1908090		8091910	5·2408431	1943803	5·1445540	1·0187167	0183728		9816272	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	′

·	Dif.	Cosec.	Verseds	Tang.	Dif.	Cotang	Covers.	Secant	D	Cosine	'
702	7159	10·7603298	8·1816220	9·2463188	7381	10·7536812	9·9171650	10·0066485	223	9·9933515	60
461	7146	10·7596139	8·1830648	9·2470569	7370	10·7529431	9·9170144	10·0066708	224	9·9933292	59
407	7134	10·7588993	8·1845051	9·2477939	7358	10·7522061	9·9168636	10·0066932	223	9·9933068	58
141	7123	10·7581859	8·1859451	9·2485297	7346	10·7514703	9·9167131	10·0067155	224	9·9932845	57
[illegible]	7111	10·7574736	8·1873766	9·2492643	7335	10·7507357	9·9165624	10·0067379	225	9·9932621	56
874	7110	10·7567626	8·1888110	9·2499978	7323	10·7500022	9·9164117	10·0067604	225	9·9932396	55
479	7098	10·7560528	8·1902426	9·2507301	7311	10·7492699	9·9162609	10·0067829	225	9·9932171	54
[illegible]	7086	10·7553442	8·1916710	9·2514612	7300	10·7485388	9·9161100	10·0068054	226	9·9931946	53
[illegible]	7074	10·7546368	8·1930971	9·2521912	7288	10·7478088	9·9159591	10·0068280	226	9·9931720	52
05	7063	10·7539305	8·1945204	9·2529200	7277	10·7470800	9·9158082	10·0068506	226	9·9931494	51
746	7051	10·7532254	8·1959421	9·2536477	7266	10·7463523	9·9156572	10·0068732	227	9·9931268	50
704	7038	10·7525216	8·1973611	9·2543743	7254	10·7456257	9·9155062	10·0068959	227	9·9931041	49
811	7027	10·7518189	8·1987776	9·2550997	7243	10·7449003	9·9153551	10·0069186	227	9·9930814	48
07	7016	10·7511173	8·2001921	9·2558240	7232	10·7441760	9·9152040	10·0069413	228	9·9930587	47
[illegible]	7003	10·7504170	8·2016047	9·2565472	7220	10·7434528	9·9150528	10·0069641	228	9·9930359	46
[illegible]	6992	10·7497178	8·2030149	9·2572692	7209	10·7427308	9·9149016	10·0069869	229	9·9930131	45
03	6981	10·7490197	8·2044213	9·2579901	7198	10·7420099	9·9147504	10·0070098	229	9·9929902	44
772	6969	10·7483228	8·2058264	9·2587099	7186	10·7412901	9·9145991	10·0070327	229	9·9929673	43
720	6957	10·7476271	8·2072293	9·2594285	7176	10·7405715	9·9144478	10·0070556	230	9·9929444	42
75	6946	10·7469325	8·2086298	9·2601461	7164	10·7398539	9·9142964	10·0070786	230	9·9929214	41
[illegible]	6934	10·7462391	8·2100281	9·2608625	7154	10·7391375	9·9141450	10·0071016	231	9·9928984	40
42	6923	10·7455468	8·2114241	9·2615779	7142	10·7384221	9·9139935	10·0071247	231	9·9928753	39
44	6912	10·7448556	8·2128179	9·2622921	7132	10·7377079	9·9138420	10·0071478	231	9·9928522	38
44	6900	10·7441656	8·2142094	9·2630053	7120	10·7369947	9·9136904	10·0071709	232	9·9928291	37
43	6889	10·7434767	8·2155987	9·2637173	7110	10·7362827	9·9135388	10·0071941	232	9·9928059	36
10	6877	10·7427890	8·2169857	9·2644283	7099	10·7355717	9·9133872	10·0072173	232	9·9927827	35
77	6867	10·7421023	8·2183705	9·2651382	7088	10·7348618	9·9132355	10·0072405	233	9·9927595	34
12	6855	10·7414168	8·2197531	9·2658470	7077	10·7341530	9·9130837	10·0072638	233	9·9927362	33
76	6844	10·7407324	8·2211334	9·2665547	7066	10·7334453	9·9129319	10·0072871	234	9·9927129	32
19	6833	10·7400491	8·2225116	9·2672613	7056	10·7327387	9·9127801	10·0073105	234	9·9926895	31
90	6821	10·7393670	8·2238875	9·2679669	7045	10·7320331	9·9126282	10·0073339	234	9·9926661	30
61	6811	10·7386859	8·2252613	9·2686714	7035	10·7313286	9·9124763	10·0073573	235	9·9926427	29
61	6800	10·7380059	8·2266329	9·2693749	7023	10·7306251	9·9123244	10·0073808	235	9·9926192	28
[illegible]	6788	10·7373271	8·2280023	9·2700772	7014	10·7299228	9·9121723	10·0074043	235	9·9925957	27
7	6778	10·7366493	8·2293695	9·2707786	7002	10·7292214	9·9120203	10·0074278	236	9·9925722	26
4	6767	10·7359726	8·2307345	9·2714788	6992	10·7285212	9·9118682	10·0074514	236	9·9925486	25
10	6756	10·7352970	8·2320974	9·2721780	6982	10·7278220	9·9117161	10·0074750	237	9·9925250	24
5	6745	10·7346225	8·2334581	9·2728762	6971	10·7271238	9·9115639	10·0074987	237	9·9925013	23
[illegible]	6734	10·7339491	8·2348167	9·2735733	6961	10·7264267	9·9114116	10·0075224	237	9·9924776	22
[illegible]	6723	10·7332768	8·2361732	9·2742694	6950	10·7257306	9·9112591	10·0075461	238	9·9924539	21
5	6713	10·7326055	8·2375275	9·2749644	6940	10·7250356	9·9111070	10·0075699	238	9·9924301	20
7	6702	10·7319353	8·2388797	9·2756584	6930	10·7243416	9·9109547	10·0075937	239	9·9924063	19
[illegible]	6691	10·7312662	8·2402297	9·2763514	6920	10·7236486	9·9108022	10·0076176	239	9·9923824	18
[illegible]	6681	10·7305981	8·2415777	9·2770434	6909	10·7229566	9·9106498	10·0076415	239	9·9923585	17
[illegible]	6670	10·7299311	8·2429235	9·2777343	6899	10·7222657	9·9104973	10·0076654	240	9·9923346	16
8	6659	10·7292652	8·2442673	9·2784242	6889	10·7215758	9·9103447	10·0076894	240	9·9923106	15
7	6649	10·7286003	8·2456089	9·2791131	6878	10·7208869	9·9101921	10·0077134	240	9·9922866	14
5	6638	10·7279365	8·2469485	9·2798009	6869	10·7201991	9·9100395	10·0077374	241	9·9922626	13
[illegible]	6628	10·7272737	8·2482860	9·2804878	6858	10·7195122	9·9098868	10·0077615	241	9·9922385	12
0	6617	10·7266120	8·2496214	9·2811736	6849	10·7188264	9·9097341	10·0077856	242	9·9922144	11
7	6607	10·7259513	8·2509547	9·2818585	6838	10·7181415	9·9095813	10·0078098	242	9·9921902	10
3	6596	10·7252917	8·2522860	9·2825423	6828	10·7174577	9·9094285	10·0078340	242	9·9921660	9
[illegible]	6586	10·7246331	8·2536152	9·2832251	6819	10·7167749	9·9092756	10·0078582	243	9·9921418	8
5	6576	10·7239755	8·2549424	9·2839070	6808	10·7160930	9·9091227	10·0078825	243	9·9921175	7
1	6566	10·7233189	8·2562675	9·2845878	6799	10·7154122	9·9089697	10·0079068	243	9·9920932	6
6	6555	10·7226634	8·2575906	9·2852677	6789	10·7147323	9·9088167	10·0079311	244	9·9920689	5
1	6545	10·7220089	8·2589117	9·2859466	6779	10·7140534	9·9086637	10·0079555	244	9·9920445	4
5	6534	10·7213555	8·2602307	9·2866245	6769	10·7133755	9·9085106	10·0079799	245	9·9920201	3
0	6525	10·7207030	8·2615477	9·2873014	6759	10·7126986	9·9083575	10·0080044	245	9·9919956	2
4	6514	10·7200516	8·2628627	9·2879773	6750	10·7120227	9·9082043	10·0080289	245	9·9919711	1
[illegible]	6504	10·7194012	8·2641757	9·2886523		10·7113477	9·9080510	10·0080534		9·9919466	0
s	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	'

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine
0	1908090	2855	8091910	5·2408431	1943803	5·1445540	1·0187167	0183728	556	[illegible]
1	1910945	2856	8089055	5·2330121	1946822	5·1365763	1·0187743	0184284	556	[illegible]
2	1913801	2855	8086199	5·2252050	1949841	5·1286224	1·0188321	0184840	557	[illegible]
3	1916656	2854	8083344	5·2174216	1952861	5·1206921	1·0188899	0185397	558	[illegible]
4	1919510	2855	8080490	5·2096618	1955881	5·1127855	1·0189478	0185955	559	[illegible]
5	1922365	2855	8077635	5·2019254	1958901	5·1049024	1·0190059	0186514	559	[illegible]
6	1925220	2854	8074780	5·1942125	1961922	5·0970426	1·0190640	0187073	561	[illegible]
7	1928074	2854	8071926	5·1865228	1964943	5·0892061	1·0191222	0187634	561	[illegible]
8	1930928	2854	8069072	5·1788563	1967964	5·0813928	1·0191805	0188195	562	[illegible]
9	1933782	2854	8066218	5·1712128	1970986	5·0736025	1·0192389	0188757	563	[illegible]
10	1936636	2854	8063364	5·1635924	1974008	5·0658352	1·0192973	0189320	564	[illegible]
11	1939490	2854	8060510	5·1559948	1977031	5·0580907	1·0193559	0189884	564	[illegible]
12	1942344	2853	8057656	5·1484199	1980053	5·0503690	1·0194146	0190448	566	[illegible]
13	1945197	2853	8054803	5·1408677	1983076	5·0126700	1·0194734	0191014	566	[illegible]
14	1948050	2853	8051950	5·1333381	1986100	5·0349935	1·0195322	0191580	567	[illegible]
15	1950903	2853	8049097	5·1258309	1989124	5·0273395	1·0195912	0192147	568	[illegible]
16	1953756	2853	8046244	5·1183461	1992148	5·0197078	1·0196502	0192715	569	[illegible]
17	1956609	2852	8043391	5·1108835	1995172	5·0120984	1·0197093	0193284	[illegible]	[illegible]
18	1959461	2853	8040539	5·1034431	1998197	5·0045111	1·0197686	0193853	[illegible]	[illegible]
19	1962314	2852	8037686	5·0960248	2001222	4·9969459	1·0198279	0194424	571	[illegible]
20	1965166	2852	8034834	5·0886284	2004248	4·9894027	1·0198873	0194995	572	[illegible]
21	1968018	2852	8031982	5·0812539	2007274	4·9818813	1·0199468	0195567	573	[illegible]
22	1970870	2852	8029130	5·0739012	2010300	4·9743817	1·0200064	0196140	574	[illegible]
23	1973722	2851	8026278	5·0665701	2013327	4·9669037	1·0200661	0196714	574	[illegible]
24	1976573	2852	8023427	5·0592606	2016354	4·9594474	1·0201259	0197288	576	[illegible]
25	1979425	2851	8020575	5·0519726	2019381	4·9520125	1·0201858	0197864	576	[illegible]
26	1982276	2851	8017724	5·0447060	2022409	4·9445990	1·0202457	0198440	577	[illegible]
27	1985127	2851	8014873	5·0374607	2025437	4·9372068	1·0203058	0199017	578	[illegible]
28	1987978	2851	8012022	5·0302467	2028465	4·9298358	1·0203660	0199595	578	[illegible]
29	1990829	2850	8009171	5·0230337	2031494	4·9224859	1·0204262	0200173	580	[illegible]
30	1993679	2851	8006321	5·0158517	2034523	4·9151570	1·0204866	0200753	580	[illegible]
31	1996530	2850	8003470	5·0086907	2037552	4·9078491	1·0205470	0201333	581	[illegible]
32	1999380	2850	8000620	5·0015505	2040582	4·9005620	1·0206075	0201914	582	[illegible]
33	2002230	2850	7997770	4·9944311	2043612	4·8932956	1·0206682	0202496	583	[illegible]
34	2005080	2850	7994920	4·9873323	2046643	4·8860499	1·0207289	0203078	584	[illegible]
35	2007930	2849	7992070	4·9802541	2049674	4·8788248	1·0207897	0203663	585	[illegible]
36	2010779	2850	7989221	4·9731964	2052705	4·8716201	1·0208506	0204248	585	[illegible]
37	2013629	2849	7986371	4·9661591	2055737	4·8644359	1·0209116	0204833	586	[illegible]
38	2016478	2849	7983522	4·9591421	2058769	4·8572719	1·0209727	0205419	587	[illegible]
39	2019327	2849	7980673	4·9521453	2061801	4·8501282	1·0210339	0206006	588	[illegible]
40	2022176	2848	7977824	4·9451687	2064834	4·8430045	1·0210952	0206594	588	[illegible]
41	[illegible]	[illegible]	7974976	4·9382120	2067867	[illegible]	1·0211566	0207182	590	[illegible]
42	2027873	2848	7972127	4·9312754	2070900	[illegible]	1·0212180	0207772	590	[illegible]
43	2030721	2848	7969279	4·9243586	2073934	4·8217536	1·0212796	0208362	591	[illegible]
44	[illegible]	[illegible]	7966431	4·9174616	2076968	4·8147096	1·0213418	[illegible]	592	[illegible]
45	[illegible]	[illegible]	[illegible]	4·9105844	2080003	[illegible]	1·0214030	0209545	593	[illegible]
46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1·0214649	[illegible]	594	[illegible]
47	[illegible]	[illegible]	7957887	[illegible]	2086073	[illegible]	[illegible]	[illegible]	594	[illegible]
48	[illegible]	[illegible]	7955039	4·8900700	[illegible]	4·7867500	[illegible]	0211326	595	[illegible]
49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4·7797837	[illegible]	0211921	596	[illegible]
50	[illegible]	[illegible]	7949345	[illegible]	2095181	[illegible]	1·0217132	0212517	597	[illegible]
51	[illegible]	[illegible]	[illegible]	[illegible]	2098218	4·7659490	[illegible]	0213114	598	[illegible]
52	[illegible]	[illegible]	7943651	[illegible]	2101255	4·7590603	[illegible]	0213712	599	[illegible]
53	[illegible]	[illegible]	7940805	[illegible]	2104293	[illegible]	[illegible]	0214311	599	[illegible]
54	[illegible]	[illegible]	7937958	[illegible]	2107331	4·7453401	1·0219630	0214910	600	[illegible]
55	[illegible]	[illegible]	7935112	[illegible]	2110369	[illegible]	1·0220257	0215510	601	[illegible]
56	[illegible]	[illegible]	7932266	[illegible]	2113407	4·7316954	1·0220885	0216111	602	[illegible]
57	[illegible]	[illegible]	7929420	[illegible]	2116446	4·7249012	1·0221514	0216713	603	[illegible]
58	[illegible]	[illegible]	7926574	[illegible]	2119486	[illegible]	1·0222144	0217316	604	[illegible]
59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1·0222774	0217920	605	[illegible]
60	2079117	[illegible]	7920883	[illegible]	[illegible]	4·7046301	1·0223406	0218524		[illegible]
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers.	D.	Sine

Cosec.	Versed.	Tang.	Dif	Cotang.	Covers.	Secant	D	Cosine	'
10·7194017	8·2641[illegible]	[illegible]	6740	10·7114477	9·9080[illegible]	10·0080[illegible]	246	9·9919[illegible]	60
10·7187517	8·26[illegible]	[illegible]	6730	10·7107[illegible]	9·9078978	10·0080[illegible]	246	9·9919[illegible]	59
10·7181[illegible]	[illegible]	[illegible]	6720	10·7100[illegible]	9·9077[illegible]	10·0081[illegible]	247	[illegible]	58
10·7174[illegible]	[illegible]	9·2906[illegible]	6711	10·7093287	9·9075911	10·0081[illegible]	247	[illegible]	57
10·716[illegible]	8·2694078	9·2913424	6702	10·7086576	9·9074377	[illegible]	247	[illegible]	56
10·7161640	8·2707108	9·2920[illegible]	6691	10·7079[illegible]	9·907[illegible]	10·0081767	247	[illegible]	55
10·7155197	8·2720119	9·2926817	6682	10·7073183	9·9071[illegible]	10·0082014	249	9·9917986	54
10·7148765	8·2733111	9·2933500	6672	10·7066500	9·9069772	10·0082263	248	9·9917737	53
10·7142339	8·2746082	9·2940172	6664	10·7059828	9·9068[illegible]	10·0082511	249	9·9917489	52
10·7135924	8·27[illegible]9035	9·2946836	6653	10·7053164	9·9066699	10·0082760	249	9·9917240	51
10·7129[illegible]	8·2771967	9·2953489	6645	10·7046511	9·9065164	10·0083009	250	9·9916991	50
10·7123[illegible]	8·2784880	9·2960134	6635	10·7039866	9·9063625	10·0083259	249	9·9916741	49
10·7116740	8·2797774	9·2966769	6626	10·7033231	9·9062[illegible]	10·0083508	251	9·991649[illegible]	48
10·7110364	8·2810649	9·2973395	6616	10·7026605	9·9060549	10·0083759	251	9·9916241	47
10·7103999	8·2823504	9·2980011	6607	10·7019989	9·90[illegible]9011	10·0084010	251	9·991599[illegible]	46
10·7097643	8·2836341	9·2986618	6598	10·70133[illegible]	[illegible]7471	10·0084261	251	9·9915739	45
10·7091296	8·2849158	9·2993216	6588	10·70067[illegible]	9·90[illegible]	10·0084512	252	9·9915488	44
10·7084960	8·2861956	9·2999804	6579	10·7000196	9·9054392	10·0084764	252	9·99152[illegible]	43
10·7078634	8·2874735	9·3006383	6571	10·6993617	9·905[illegible]	10·0085016	253	9·9914984	42
10·7072318	8·2887495	9·3012954	6560	10·6987046	9·9051310	10·0085269	253	9·9914731	41
10·7066007	8·2900236	9·3019514	6552	10·6980486	9·9049769	10·0085522	253	9·9914478	40
10·7059706	8·2912958	9·3026066	6543	10·6973934	9·9048227	10·0085775	254	9·9914225	39
10·7053420	8·2925661	9·3032609	6534	10·6967391	9·9046683	10·0086029	254	9·9913971	38
10·7047141	8·2938346	9·3039143	6524	10·6960857	9·9045142	10·0086283	255	9·9913717	37
10·7040871	8·2951012	9·3045667	6516	10·6954333	9·9043599	10·0086538	255	9·9913462	36
10·7034610	8·2963660	9·3052183	6506	10·6947817	9·9042055	10·0086793	255	9·9913207	35
10·7028359	8·2976289	9·3058689	6498	10·6941311	9·9040511	10·0087048	256	9·9912952	34
10·7022117	8·2988899	9·3065187	6488	10·6934813	9·9038966	10·0087304	256	9·9912696	33
10·7015884	8·3001491	9·3071675	6480	10·6928325	9·9037421	10·0087560	256	9·9912440	32
10·7009661	8·3014064	9·3078155	6471	10·6921845	9·9035876	10·0087816	257	9·9912184	31
10·7003447	8·3026619	9·3084626	6462	10·6915374	9·9034330	10·0088073	257	9·9911927	30
10·6997243	8·3039156	9·3091088	6453	10·6908912	9·9032783	10·0088330	258	9·9911670	29
10·6991047	8·3051675	9·3097541	6444	10·6902459	9·9031236	10·0088588	258	9·9911412	28
10·6984861	8·3064175	9·3103985	6436	10·6896015	9·9029689	10·0088846	258	9·9911154	27
10·6978684	8·3076657	9·3110421	6427	10·6889579	9·9028141	10·0089104	259	9·9910896	26
10·6972517	8·3089122	9·3116848	6418	10·6883152	9·9026593	10·0089363	259	9·9910637	25
10·6966358	8·3101568	9·3123266	6409	10·6876734	9·9025044	10·0089622	259	9·9910378	24
10·6960209	8·3113996	9·3129675	6401	10·6870325	9·9023495	10·0089881	260	9·9910119	23
10·6954068	8·3126406	9·3136076	6392	10·6863924	9·9021945	10·0090141	261	9·9909859	22
10·6947934	8·3138798	9·3142468	6383	10·6857532	9·9020395	10·0090402	260	9·9909598	21
10·6941811	8·3151172	9·3148851	6375	10·6851149	9·9018845	10·0090662	261	9·9909338	20
10·6935697	8·3163529	9·3155226	6366	10·6844774	9·9017294	10·0090923	[illegible]	9·9909077	19
10·6929593	8·3175868	9·3161597	6358	10·683840[illegible]	9·9015742	10·00911[illegible]	[illegible]	9·99088[illegible]	18
10·6923497	8·3188189	9·3167950	6349	10·6832050	9·9014190	10·0091447	262	[illegible]	17
10·6917410	8·3200493	9·3174299	6341	10·6825701	9·9012638	10·0091709	262	[illegible]	16
10·6911332	8·3212779	9·3180640	[illegible]	10·6819360	9·9011085	10·0091971	263	[illegible]	15
10·6905263	8·3225047	9·3186972	6323	10·681302[illegible]	9·9009531	10·0092234	264	9·99077[illegible]	14
10·6899202	8·3237298	9·3193295	6316	10·6806705	9·9007978	10·0092498	263	9·99075[illegible]	13
10·6893151	8·3249532	9·3199611	6307	10·6800389	9·9006423	10·0092761	265	9·9907239	12
10·6887108	8·3261748	9·3205918	6298	10·6794082	9·9004869	10·0093026	264	9·9906974	11
10·6881074	8·3273947	9·3212216	6290	10·6787784	9·9003313	10·0093290	265	9·9906710	10
10·6875049	8·3286128	9·3218506	6282	10·6781494	9·9001758	10·0093555	265	9·9906445	9
10·6869032	8·3298292	9·3224788	6273	10·6775212	9·9000202	10·0093820	266	9·9906180	8
10·6863024	8·3310439	9·3231061	6266	10·6768939	9·8998645	10·0094086	266	9·9905914	7
10·6857025	8·3322568	9·3237327	6257	10·6762673	9·8997088	10·0094352	266	9·9905648	6
10·6851035	8·3334682	9·3243584	6248	10·6756416	9·8995531	10·0094618	267	9·9905382	5
10·6845054	8·3346778	9·3249832	6241	10·6750168	9·8993974	10·0094885	267	9·9905115	4
10·6839079	8·3358857	9·3256073	6232	10·6743927	9·8992414	10·0095152	267	9·9904848	3
10·6833117	8·3370918	9·3262305	6224	10·6737695	9·8990855	10·0095420	267	9·9904580	2
10·6827159	8·3382963	9·3268529	6216	10·6731471	9·8989296	10·0095688	268	9·9904312	1
10·6821211	8·3394991	9·3274745		10·6725255	9·8987736	10·0095956		9·9904044	0
Secant	Covers.	Cotang.	Dif.	Tang.	Versed.	Cosec.	D	Sine	'

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D	Cosine	′
0	2079117	2845	7920883	4·8097343	2125566	4·7046301	1·0223406	0218524	605	9781476	
1	2081962	2845	7918038	4·8031613	2128606	4·6979100	1·0224039	0219129	606	9780871	
2	2084807	2845	7915193	4·7966064	2131647	4·6912083	1·0224672	0219735	607	9780265	
3	2087652	2845	7912348	4·7900702	2134688	4·6845242	1·0225307	0220342	608	9779658	
4	2090497	2844	7909503	4·7835520	2137730	4·6778595	1·0225942	0220950	608	9779050	
5	2093341	2845	7906659	4·7770519	2140772	4·6712124	1·0226578	0221558	610	[illegible]	
6	2096186	2844	7903814	4·7705699	2143814	4·6645832	1·0227216	0222168	610	[illegible]	
7	2099030	2844	7900970	4·7641058	2146857	4·6579721	1·0227854	0222778	611	[illegible]	
8	2101874	2844	7898126	4·7576596	2149900	4·6513788	1·0228493	0223389	612	[illegible]	
9	2104718	2843	7895282	4·7512312	2152944	4·6448034	1·0229133	0224001	612	[illegible]	
10	2107561	2844	7892439	4·7448206	2155988	4·6382457	1·0229774	0224613	614	[illegible]	
11	2110405	2843	7889595	4·7384277	2159032	4·6317056	1·0230416	0225227	614	[illegible]	
12	2113248	2843	7886752	4·7320524	2162077	4·6251832	1·0231059	0225841	615	[illegible]	
13	2116091	2843	7883909	4·7256945	2165122	4·6186783	1·0231703	0226456	616	[illegible]	
14	2118934	2843	7881066	4·7193542	2168167	4·6121908	1·0232348	0227072	617	[illegible]	
15	2121777	2842	7878223	4·7130313	2171213	4·6057207	1·0232994	0227689	618	[illegible]	
16	2124619	2843	7875381	4·7067256	2174259	4·5992680	1·0233641	0228307	618	[illegible]	
17	2127462	2842	7872538	4·7004372	2177306	4·5928325	1·0234288	0228925	619	[illegible]	
18	2130304	2842	7869696	4·6941660	2180353	4·5864141	1·0234937	0229544	620	[illegible]	
19	2133146	2842	7866854	4·6879119	2183400	4·5800129	1·0235587	0230164	621	[illegible]	
20	2135988	2841	7864012	4·6816748	2186448	4·5736287	1·0236237	0230785	622	[illegible]	
21	2138829	2842	7861171	4·6754548	2189496	4·5672615	1·0236889	0231407	623	[illegible]	
22	2141671	2841	7858329	4·6692516	2192544	4·5609111	1·0237541	0232030	62[illegible]	[illegible]	
23	2144512	2841	7855488	4·6630652	2195593	4·5545776	1·0238193	0232653	624	[illegible]	
24	2147353	2841	7852647	4·6568956	2198643	4·5482608	1·0238849	0233277	625	[illegible]	
25	2150194	2841	7849806	4·6507427	2201692	4·5419608	1·0239504	0233902	626	[illegible]	
26	2153035	2841	7846965	4·6446064	2204742	4·5356773	1·0240161	0234528	627	[illegible]	
27	2155876	2840	7844124	4·6384867	2207793	4·5294105	1·0240818	0235155	627	[illegible]	
28	2158716	2840	7841284	4·6323835	2210844	4·5231601	1·0241476	0235782	629	[illegible]	
29	2161556	2840	7838444	4·6262967	2213895	4·5169261	1·0242135	0236411	629	[illegible]	
30	2164396	2840	7835604	4·6202263	2216947	4·5107085	1·0242795	0237040	630	[illegible]	
31	2167236	2840	7832764	4·6141722	2219999	4·5045072	1·0243456	0237670	631	[illegible]	
32	2170076	2839	7829924	4·6081343	2223051	4·4983221	1·0244118	0238301	631	9761089	
33	2172915	2839	7827085	4·6021126	2226104	4·4921532	1·0244781	0238932	633	[illegible]	
34	2175754	2839	7824246	4·5961070	2229157	4·4860004	1·0245445	0239565	633	[illegible]	
35	2178593	2839	7821407	4·5901174	2232211	4·4798636	1·0246110	0240198	634	[illegible]	
36	2181432	2839	7818568	4·5841439	2235265	4·4737428	1·0246776	0240832	635	[illegible]	
37	2184271	2839	7815729	4·5781862	2238319	4·4676379	1·0247442	0241467	636	[illegible]	
38	2187110	2838	7812890	4·5722444	2241374	4·4615489	1·0248110	0242103	637	[illegible]	
39	2189948	2838	7810052	4·5663183	2244429	4·4554756	1·0248779	0242740	637	[illegible]	
40	2192786	2838	7807214	4·5604080	2247485	4·4494181	1·0249448	0243377	638	[illegible]	
41	2195624	2838	7804376	4·5545134	2250541	4·4433762	1·0250119	0244015	640	[illegible]	
42	2198462	2838	7801538	4·5486344	2253597	4·4373500	1·0250790	0244655	639	[illegible]	
43	2201300	2837	7798700	4·5427709	2256654	4·4313392	1·0251463	0245294	641	[illegible]	
44	2204137	2837	7795863	4·5369229	2259711	4·4253439	1·0252136	0245935	642	[illegible]	
45	2206974	2837	7793026	4·5310903	2262769	4·4193641	1·0252811	0246577	642	[illegible]	
46	2209811	2837	7790189	4·5252730	2265827	4·4133996	1·0253486	0247219	643	[illegible]	
47	2212648	2837	7787352	4·5194711	2268885	4·4074504	1·0254162	0247862	644	[illegible]	
48	2215485	2836	7784515	4·5136844	2271944	4·4015164	1·0254839	0248506	645	[illegible]	
49	2218321	2837	7781679	4·5079129	2275003	4·3955977	1·0255518	0249151	646	[illegible]	
50	2221158	2836	7778842	4·5021565	2278063	4·3896940	1·0256197	0249797	647	[illegible]	
51	2223994	2836	7776006	4·4964152	2281123	4·3838054	1·0256877	0250444	647	[illegible]	
52	2226830	2836	7773170	4·4906889	2284184	4·3779317	1·0257558	0251091	648	[illegible]	
53	2229666	2835	7770334	4·4849775	2287244	4·3720731	1·0258240	0251739	649	[illegible]	
54	2232501	2836	7767499	4·4792810	2290306	4·3662293	1·0258923	0252388	650	[illegible]	
55	2235337	2835	7764663	4·4735993	2293367	4·3604003	1·0259607	0253038	651	[illegible]	
56	2238172	2835	7761828	4·4679323	2296429	4·3545861	1·0260292	0253689	651	[illegible]	
57	2241007	2835	7758993	4·4622803	2299492	4·3487861	1·0260978	0254340	653	[illegible]	
58	2243842	2834	7756158	4·4566428	2302555	4·3430018	1·0261665	0254992	653	[illegible]	
59	2246676	2835	7753324	4·4510198	2305618	4·3372316	1·0262352	0255645	654	[illegible]	
60	2249511		7750489	4·4454115	2308682	4·3314759	1·0263041	0256299		[illegible]	
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D	Sine	′

Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
5939	10·6821211	8·3394991	9·3274745	6208	10·6725255	9·8987736	10·0095956	269	9·9904044	60
5931	10·6815272	8·3407002	9·3280953	6200	10·6719047	9·8986176	10·0096225	269	9·9903775	59
5922	10·6809341	8·3418997	9·3287153	6192	10·6712847	9·8984615	10·0096494	269	9·9903506	58
5914	10·6803419	8·3430975	9·3293345	6183	10·6706655	9·8983054	10·0096763	270	9·9903237	57
5905	10·6797505	8·3442936	9·3299528	6176	10·6700472	9·8981492	10·0097033	270	9·9902967	56
5897	10·6791600	8·3454880	9·3305704	6168	10·6694296	9·8979930	10·0097303	271	9·9902697	55
5889	10·6785703	8·3466808	9·3311872	6159	10·6688128	9·8978367	10·0097574	271	9·9902426	54
5880	10·6779814	8·3478719	9·3318031	6152	10·6681969	9·8976804	10·0097845	272	9·9902155	53
5872	10·6773934	8·3490614	9·3324183	6144	10·6675817	9·8975241	10·0098117	271	9·9901883	52
5864	10·6768062	8·3502492	9·3330327	6136	10·6669673	9·8973677	10·0098388	273	9·9901612	51
5855	10·6762198	8·3514354	9·3336463	6128	10·6663537	9·8972112	10·0098661	272	9·9901339	50
5848	10·6756343	8·3526200	9·3342591	6120	10·6657409	9·8970547	10·0098933	273	9·9901067	49
5839	10·6750495	8·3538029	9·3348711	6112	10·6651289	9·8968982	10·0099206	273	9·9900794	48
5830	10·6744656	8·3549842	9·3354823	6104	10·6645177	9·8967416	10·0099479	274	9·9900521	47
5823	10·6738826	8·3561639	9·3360927	6097	10·6639073	9·8965850	10·0099753	274	9·9900247	46
5814	10·6733003	8·3573419	9·3367024	6089	10·6632976	9·8964283	10·0100027	275	9·9899973	45
5806	10·6727189	8·3585184	9·3373113	6081	10·6626887	9·8962716	10·0100302	275	9·9899698	44
5799	10·6721383	8·3596932	9·3379194	6073	10·6620806	9·8961148	10·0100577	275	9·9899423	43
5790	10·6715584	8·3608664	9·3385267	6066	10·6614733	9·8959580	10·0100852	275	9·9899148	42
5782	10·6709794	8·3620381	9·3391333	6058	10·6608667	9·8958011	10·0101127	276	9·9898873	41
5773	10·6704012	8·3632081	9·3397391	6050	10·6602609	9·8956442	10·0101403	277	9·9898597	40
5766	10·6698239	8·3643765	9·3403441	6043	10·6596559	9·8954872	10·0101680	277	9·9898320	39
5758	10·6692473	8·3655434	9·3409484	6035	10·6590516	9·8953302	10·0101957	277	9·9898043	38
5750	10·6686715	8·3667086	9·3415519	6027	10·6584481	9·8951732	10·0102234	277	9·9897766	37
5742	10·6680965	8·3678723	9·3421546	6020	10·6578454	9·8950161	10·0102511	278	9·9897489	36
5734	10·6675223	8·3690344	9·3427566	6012	10·6572434	9·8948589	10·0102789	279	9·9897211	35
5726	10·6669489	8·3701950	9·3433578	6005	10·6566422	9·8947017	10·0103068	278	9·9896932	34
5718	10·6663763	8·3713539	9·3439583	5997	10·6560417	9·8945445	10·0103346	280	9·9896654	33
5710	10·6658045	8·3725114	9·3445580	5990	10·6554420	9·8943872	10·0103626	279	9·9896374	32
5703	10·6652335	8·3736672	9·3451570	5982	10·6548430	9·8942299	10·0103905	280	9·9896095	31
5694	10·6646632	8·3748215	9·3457552	5975	10·6542448	9·8940725	10·0104185	280	9·9895815	30
5687	10·6640938	8·3759743	9·3463527	5967	10·6536473	9·8939150	10·0104465	281	9·9895535	29
5679	10·6635251	8·3771255	9·3469494	5960	10·6530506	9·8937576	10·0104746	281	9·9895254	28
5671	10·6629572	8·3782751	9·3475454	5953	10·6524546	9·8936000	10·0105027	281	9·9894973	27
5663	10·6623901	8·3794232	9·3481407	5945	10·6518593	9·8934425	10·0105308	282	9·9894692	26
5656	10·6618238	8·3805698	9·3487352	5938	10·6512648	9·8932849	10·0105590	282	9·9894410	25
5647	10·6612582	8·3817149	9·3493290	5930	10·6506710	9·8931272	10·0105872	283	9·9894128	24
5641	10·6606935	8·3828584	9·3499220	5923	10·6500780	9·8929695	10·0106155	283	9·9893845	23
5632	10·6601294	8·3840004	9·3505143	5916	10·6494857	9·8928117	10·0106438	283	9·9893562	22
5625	10·6595662	8·3851409	9·3511059	5909	10·6488941	9·8926539	10·0106721	284	9·9893279	21
5617	10·6590037	8·3862799	9·3516968	5901	10·6483032	9·8924961	10·0107005	284	9·9892995	20
5610	10·6584420	8·3874174	9·3522869	5894	10·6477131	9·8923382	10·0107289	284	9·9892711	19
5602	10·6578810	8·3885533	9·3528763	5887	10·6471237	9·8921802	10·0107573	285	9·9892427	18
5594	10·6573208	8·3896878	9·3534650	5880	10·6465350	9·8920222	10·0107858	286	9·9892142	17
5587	10·6567614	8·3908207	9·3540530	5872	10·6459470	9·8918642	10·0108144	285	9·9891856	16
5579	10·6562027	8·3919522	9·3546402	5865	10·6453598	9·8917061	10·0108429	286	9·9891571	15
5572	10·6556448	8·3930822	9·3552267	5859	10·6447733	9·8915480	10·0108715	287	9·9891285	14
5564	10·6550876	8·3942107	9·3558126	5851	10·6441874	9·8913898	10·0109002	287	9·9890998	13
5557	10·6545312	8·3953377	9·3563977	5844	10·6436023	9·8912316	10·0109289	287	9·9890711	12
5549	10·6539755	8·3964632	9·3569821	5837	10·6430179	9·8910733	10·0109576	287	9·9890424	11
5542	10·6534206	8·3975873	9·3575658	5829	10·6424342	9·8909150	10·0109863	288	9·9890137	10
5534	10·6528664	8·3987098	9·3581487	5823	10·6418513	9·8907566	10·0110151	289	9·9889849	9
5527	10·6523130	8·3998310	9·3587310	5816	10·6412690	9·8905982	10·0110440	289	9·9889560	8
5520	10·6517603	8·4009506	9·3593126	5809	10·6406874	9·8904397	10·0110729	289	9·9889271	7
5512	10·6512083	8·4020688	9·3598935	5801	10·6401065	9·8902812	10·0111018	289	9·9888982	6
5505	10·6506571	8·4031855	9·3604736	5795	10·6395264	9·8901226	10·0111307	290	9·9888693	5
5498	10·6501066	8·4043008	9·3610531	5788	10·6389469	9·8899640	10·0111597	290	9·9888403	4
5490	10·6495568	8·4054147	9·3616319	5781	10·6383681	9·8898054	10·0111887	291	9·9888113	3
5483	10·6490078	8·4065270	9·3622100	5774	10·6377900	9·8896467	10·0112178	291	9·9887822	2
5475	10·6484595	8·4076380	9·3627874	5767	10·6372126	9·8894879	10·0112469	292	9·9887531	1
	10·6479120	8·4087475	9·3633641		10·6366359	9·8893291	10·0112761		9·9887239	0
Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

'	Sine	Dif	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	D.	Cosine	'
0	2249511	2834	7750489	4·4454115	2308682	4·3314759	1·0263041	0256299	655	9743701	60
1	2252345	2834	7747655	4·4398176	2311746	4·3257347	1·0263731	0256954	656	9743046	59
2	2255179	2834	7744821	4·4342382	2314811	4·3200079	1·0264421	0257610	656	9742390	58
3	2258013	2833	7741987	4·4286731	2317876	4·3142955	1·0265113	0258266	657	9741734	57
4	2260846	2834	7739154	4·4231224	2320941	4·3085974	1·0265806	0258923	658	9741077	56
5	2263680	2833	7736320	4·4175859	2324007	4·3029136	1·0266499	0259581	659	9740419	55
6	2266513	2833	7733487	4·4120637	2327073	4·2972440	1·0267194	0260240	660	9739760	54
7	2269346	2833	7730654	4·4065556	2330140	4·2915885	1·0267889	0260900	661	9739100	53
8	2272179	2833	7727821	4·4010616	2333207	4·2859472	1·0268586	0261561	661	9738439	52
9	2275012	2832	7724988	4·3955817	2336274	4·2803199	1·0269283	0262222	662	9737778	51
10	2277844	2833	7722156	4·3901158	2339342	4·2747066	1·0269982	0262884	663	9737116	50
11	2280677	2832	7719323	4·3846638	2342410	4·2691072	1·0270681	0263547	664	9736453	49
12	2283509	2832	7716491	4·3792257	2345479	4·2635218	1·0271381	0264211	665	9735789	48
13	2286341	2831	7713659	4·3738013	2348548	4·2579501	1·0272082	0264876	665	9735124	47
14	2289172	2832	7710828	4·3683910	2351617	4·2523923	1·0272785	0265541	666	9734459	46
15	2292004	2831	7707996	4·3629943	2354687	4·2468482	1·0273488	0266207	667	9733793	45
16	2294835	2831	7705165	4·3576114	2357758	4·2413177	1·0274192	0266874	668	9733126	44
17	2297666	2831	7702334	4·3522419	2360829	4·2358009	1·0274897	0267542	669	9732458	43
18	2300497	2831	7699503	4·3468861	2363900	4·2302977	1·0275603	0268211	670	9731789	42
19	2303328	2831	7696672	4·3415438	2366971	4·2248080	1·0276310	0268881	670	9731119	41
20	2306159	2830	7693841	4·3362150	2370044	4·2193318	1·0277018	0269551	672	9730449	40
21	2308989	2830	7691011	4·3308996	2373116	4·2138690	1·0277727	0270223	672	9729777	39
22	2311819	2830	7688181	4·3255977	2376189	4·2084196	1·0278437	0270895	673	9729105	38
23	2314649	2830	7685351	4·3203089	2379262	4·2029835	1·0279148	0271568	673	9728432	37
24	2317479	2830	7682521	4·3150336	2382336	4·1975606	1·0279860	0272241	675	9727759	36
25	2320309	2829	7679691	4·3097715	2385410	4·1921510	1·0280573	0272916	675	9727084	35
26	2323138	2829	7676862	4·3045225	2388485	4·1867546	1·0281287	0273591	676	9726409	34
27	2325967	2829	7674033	4·2992867	2391560	4·1813713	1·0282002	0274267	677	9725733	33
28	2328796	2829	7671204	4·2940640	2394635	4·1760011	1·0282717	0274944	678	9725056	32
29	2331625	2829	7668375	4·2888543	2397711	4·1706440	1·0283434	0275622	679	9724378	31
30	2334454	2828	7665546	4·2836571	2400788	4·1652998	1·0284152	0276301	679	9723699	30
31	2337282	2828	7662718	4·2784738	2403864	4·1599685	1·0284871	0276980	681	9723020	29
32	2340110	2828	7659890	4·2733029	2406942	4·1546501	1·0285590	0277661	681	9722339	28
33	2342938	2828	7657062	4·2681449	2410019	4·1493446	1·0286311	0278342	682	9721658	27
34	2345766	2828	7654234	4·2629996	2413097	4·1440519	1·0287033	0279024	682	9720976	26
35	2348594	2827	7651406	4·2578671	2416176	4·1387719	1·0287755	0279706	684	9720294	25
36	2351421	2827	7648579	4·2527474	2419255	4·1335046	1·0288479	0280390	684	9719610	24
37	2354248	2827	7645752	4·2476402	2422334	4·1282499	1·0289203	0281074	686	9718926	23
38	2357075	2827	7642925	4·2425457	2425414	4·1230079	1·0289929	0281760	686	9718240	22
39	2359902	2827	7640098	4·2374637	2428494	4·1177784	1·0290655	0282446	687	9717554	21
40	2362729	2826	7637271	4·2323943	2431575	4·1125614	1·0291383	0283133	687	9716867	20
41	2365555	2826	7634445	4·2273373	2434656	4·1073569	1·0292111	0283820	689	9716180	19
42	2368381	2826	7631619	4·2222928	2437737	4·1021649	1·0292840	0284509	689	9715491	18
43	2371207	2826	7628793	4·2172606	2440819	4·0969852	1·0293571	0285198	690	9714802	17
44	2374033	2826	7625967	4·2122408	2443902	4·0918178	1·0294302	0285888	691	9714112	16
45	2376859	2825	7623141	4·2072333	2446984	4·0866627	1·0295034	0286579	692	9713421	15
46	2379684	2826	7620316	4·2022380	2450068	4·0815199	1·0295768	0287271	693	9712729	14
47	2382510	2825	7617490	4·1972549	2453151	4·0763892	1·0296502	0287964	693	9712036	13
48	2385335	2824	7614665	4·1922840	2456236	4·0712707	1·0297237	0288657	694	9711343	12
49	2388159	2825	7611841	4·1873252	2459320	4·0661643	1·0297973	0289351	696	9710649	11
50	2390984	2824	7609016	4·1823785	2462405	4·0610700	1·0298711	0290047	695	9709953	10
51	2393808	2825	7606192	4·1774438	2465491	4·0559877	1·0299449	0290742	697	9709258	9
52	2396633	2824	7603367	4·1725210	2468577	4·0509174	1·0300188	0291439	698	9708561	8
53	2399457	2823	7600543	4·1676102	2471663	4·0458590	1·0300928	0292137	698	9707863	7
54	2402280	2824	7597720	4·1627114	2474750	4·0408125	1·0301669	0292835	699	9707165	6
55	2405104	2823	7594896	4·1578243	2477837	4·0357779	1·0302411	0293534	700	9706466	5
56	2407927	2824	7592073	4·1529491	2480925	4·0307550	1·0303154	0294234	701	9705766	4
57	2410751	2823	7589249	4·1480856	2484013	4·0257440	1·0303898	0294935	702	9705065	3
58	2413574	2822	7586426	4·1432339	2487102	4·0207446	1·0304643	0295637	702	9704363	2
59	2416396	2823	7583604	4·1383939	2490191	4·0157570	1·0305389	0296339	704	9703661	1
60	2419219		7580781	4·1335655	2493280	4·0107809	1·0306136	0297043		9702957	0
'	Cosine	Dif	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	'

Deg. 76.

Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
5469	10·6479120	8·4087475	9·3633641	5760	10·6366359	9·8893291	10·0112761	292	9·9887239	60
5461	10·6473651	8·4098556	9·3639401	5754	10·6360599	9·8891703	10·0113053	292	9·9886947	59
5454	10·6468190	8·4109629	9·3645155	5746	10·6354845	9·8890114	10·0113345	292	9·9886655	58
5446	10·6462736	8·4120667	9·3650901	5740	10·6349099	9·8888525	10·0113637	293	9·9886363	57
5440	10·6457290	8·4131711	9·3656643	5733	10·6343357	9·8886935	10·0113930	294	9·9886070	56
5432	10·6451850	8·4142746	9·3662374	5726	10·6337626	9·8885344	10·0114224	294	9·9885776	55
5425	10·6446418	8·4153746	9·3668100	5719	10·6331900	9·8883754	10·0114518	294	9·9885482	54
5419	10·6440993	8·4164741	9·3673819	5713	10·6326181	9·8882162	10·0114812	294	9·9885188	53
5410	10·6435574	8·4175723	9·3679532	5706	10·6320468	9·8880571	10·0115106	295	9·9884894	52
5404	10·6430164	8·4186696	9·3685238	5699	10·6314762	9·8878978	10·0115401	296	9·9884599	51
5397	10·6424760	8·4197644	9·3690937	5692	10·6309063	9·8877386	10·0115697	295	9·9884303	50
5390	10·6419363	8·4208583	9·3696629	5686	10·6303371	9·8875792	10·0115992	296	9·9884008	49
5382	10·6413973	8·4219508	9·3702315	5679	10·6297685	9·8874199	10·0116288	297	9·9883712	48
5376	10·6408591	8·4230420	9·3707994	5673	10·6292006	9·8872605	10·0116585	297	9·9883415	47
5369	10·6403215	8·4241318	9·3713667	5666	10·6286333	9·8871010	10·0116882	297	9·9883118	46
5361	10·6397846	8·4252201	9·3719333	5659	10·6280667	9·8869415	10·0117179	298	9·9882821	45
5355	10·6392485	8·4263072	9·3724992	5653	10·6275008	9·8867819	10·0117477	298	9·9882523	44
5347	10·6387130	8·4273928	9·3730645	5646	10·6269355	9·8866223	10·0117775	298	9·9882225	43
5341	10·6381783	8·4284770	9·3736291	5639	10·6263709	9·8864627	10·0118073	299	9·9881927	42
5334	10·6376442	8·4295599	9·3741930	5633	10·6258070	9·8863030	10·0118372	299	9·9881628	41
5327	10·6371108	8·4306414	9·3747563	5627	10·6252437	9·8861432	10·0118671	300	9·9881329	40
5320	10·6365781	8·4317216	9·3753190	5620	10·6246810	9·8859834	10·0118971	300	9·9881029	39
5313	10·6360461	8·4328004	9·3758810	5613	10·6241190	9·8858236	10·0119271	300	9·9880729	38
5306	10·6355148	8·4338778	9·3764423	5607	10·6235577	9·8856637	10·0119571	301	9·9880429	37
5300	10·6349842	8·4349539	9·3770030	5601	10·6229970	9·8855038	10·0119872	301	9·9880128	36
5292	10·6344542	8·4360286	9·3775631	5594	10·6224369	9·8853438	10·0120173	302	9·9879827	35
5286	10·6339250	8·4371020	9·3781225	5588	10·6218775	9·8851837	10·0120475	302	9·9879525	34
5279	10·6333964	8·4381740	9·3786813	5581	10·6213187	9·8850236	10·0120777	302	9·9879223	33
5272	10·6328685	8·4392447	9·3792394	5575	10·6207606	9·8848635	10·0121079	303	9·9878921	32
5266	10·6323413	8·4403141	9·3797969	5568	10·6202031	9·8847033	10·0121382	303	9·9878618	31
5258	10·6318147	8·4413821	9·3803537	5563	10·6196463	9·8845431	10·0121685	303	9·9878315	30
5252	10·6312889	8·4424488	9·3809100	5555	10·6190900	9·8843828	10·0121988	304	9·9878012	29
5245	10·6307637	8·4435142	9·3814655	5550	10·6185345	9·8842225	10·0122292	304	9·9877708	28
5239	10·6302392	8·4445783	9·3820205	5543	10·6179795	9·8840621	10·0122596	305	9·9877404	27
5232	10·6297153	8·4456410	9·3825748	5537	10·6174252	9·8839017	10·0122901	305	9·9877099	26
5225	10·6291921	8·4467024	9·3831285	5531	10·6168715	9·8837413	10·0123206	306	9·9876794	25
5219	10·6286696	8·4477625	9·3836816	5524	10·6163184	9·8835807	10·0123512	305	9·9876488	24
5212	10·6281477	8·4488213	9·3842340	5518	10·6157660	9·8834202	10·0123817	307	9·9876183	23
5205	10·6276265	8·4498788	9·3847858	5512	10·6152142	9·8832596	10·0124124	306	9·9875876	22
5199	10·6271060	8·4509350	9·3853370	5506	10·6146630	9·8830989	10·0124430	307	9·9875570	21
5192	10·6265861	8·4519898	9·3858876	5500	10·6141124	9·8829382	10·0124737	308	9·9875263	20
5186	10·6260669	8·4530434	9·3864376	5493	10·6135624	9·8827775	10·0125045	307	9·9874955	19
5179	10·6255483	8·4540957	9·3869869	5487	10·6130131	9·8826167	10·0125352	309	9·9874648	18
5172	10·6250304	8·4551467	9·3875356	5481	10·6124644	9·8824558	10·0125661	308	9·9874339	17
5166	10·6245132	8·4561964	9·3880837	5475	10·6119163	9·8822949	10·0125969	309	9·9874031	16
5160	10·6239966	8·4572448	9·3886312	5469	10·6113688	9·8821340	10·0126278	309	9·9873722	15
5153	10·6234806	8·4582920	9·3891781	5463	10·6108219	9·8819750	10·0126587	310	9·9873413	14
5146	10·6229653	8·4593378	9·3897244	5456	10·6102756	9·8818119	10·0126897	310	9·9873103	13
5140	10·6224507	8·4603824	9·3902700	5451	10·6097300	9·8816508	10·0127207	311	9·9872793	12
5134	10·6219367	8·4614257	9·3908151	5444	10·6091849	9·8814897	10·0127518	311	9·9872482	11
5127	10·6214233	8·4624677	9·3913595	5439	10·6086405	9·8813285	10·0127829	311	9·9872171	10
5121	10·6209106	8·4635085	9·3919034	5432	10·6080966	9·8811673	10·0128140	311	9·9871860	9
5114	10·6203985	8·4645480	9·3924466	5427	10·6075534	9·8810060	10·0128451	313	9·9871549	8
5108	10·6198871	8·4655863	9·3929893	5420	10·6070107	9·8808446	10·0128764	312	9·9871236	7
5102	10·6193763	8·4666233	9·3935313	5414	10·6064687	9·8806833	10·0129076	313	9·9870924	6
5095	10·6188661	8·4676590	9·3940727	5409	10·6059273	9·8805218	10·0129389	313	9·9870611	5
5089	10·6183566	8·4686935	9·3946136	5402	10·6053864	9·8803604	10·0129702	314	9·9870298	4
5082	10·6178477	8·4697267	9·3951538	5397	10·6048462	9·8801978	10·0130016	314	9·9869984	3
5077	10·6173395	8·4707587	9·3956935	5391	10·6043065	9·8800372	10·0130330	314	9·9869670	2
5070	10·6168318	8·4717894	9·3962326	5385	10·6037674	9·8798756	10·0130644	315	9·9869356	1
	10·6163248	8·4728189	9·3967711		10·6032289	9·8797140	10·0130959		9·9869041	0
Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	′
0	2419219	2822	7580781	4·1335655	2493280	4·0107809	1·0306136	0297043	704	9702957	60
1	2422041	2822	7577959	4·1287487	2496370	4·0058165	1·0306884	0297747	705	9702253	59
2	242486	2822	7575137	4·1239435	2499460	4·0008636	1·0307633	0298452	706	9701548	58
3	242768[illegible]	2822	75[illegible]15	4·1191498	2502551	3·9959223	1·0308383	0299158	706	9700842	57
4	2430507	2822	756[illegible]	4·1143675	2505642	3·9909914	1·0309134	0299864	708	9700136	56
5	2433329	2821	7566671	4·1095967	2508734	3·9860739	1·0309886	0300572	708	9699428	55
6	2436150	2821	7563850	4·1048374	2511826	3·9811669	1·0310639	0301280	709	9698720	54
7	2438971	2821	756102[illegible]	4·1000893	2514919	3·9762712	1·0311394	0301989	710	9698011	53
8	2441792	2821	7558208	4·0953526	2518012	3·9713868	1·0312147	0302699	710	9697301	52
9	2444613	2820	7555387	4·0906272	2521106	3·9665137	1·0312903	0303409	712	9696591	51
10	2447433	2821	7552567	4·0859130	2524200	3·9616518	1·0313660	0304121	712	9695879	50
11	2450254	2820	7549746	4·0812100	2527294	3·9568011	1·0314418	0304833	714	9695167	49
12	2453074	2820	7546926	4·0765181	2530389	3·9519615	1·0315177	0305547	713	9694453	48
13	2455894	2819	7544106	4·0718374	2533484	3·9471331	1·0315936	0306260	715	9693740	47
14	2458713	2820	7541287	4·0671677	2536580	3·9423157	1·0316697	0306975	716	9693025	46
15	2461533	2819	7538467	4·0625091	2539676	3·9375094	1·0317459	0307691	716	9692309	45
16	2464352	2819	7535648	4·0578615	2542773	3·9327141	1·0318222	0308407	718	9691593	44
17	2467171	2819	7532829	4·0532249	2545870	3·9279297	1·0318985	0309125	718	9690875	43
18	2469990	2819	7530010	4·0485992	2548968	3·9231563	1·0319750	0309843	719	9690157	42
19	2472809	2818	7527191	4·0439844	2552066	3·9183937	1·0320516	0310562	719	9689438	41
20	2475627	2818	7524373	4·0393804	2555165	3·9136420	1·0321282	0311281	721	9688719	40
21	2478445	2818	7521555	4·0347872	2558264	3·9089011	1·0322050	0312002	721	9687998	39
22	2481263	2818	7518737	4·0302048	2561363	3·9041710	1·0322818	0312723	722	9687277	38
23	2484081	2818	7515919	4·0256332	2564463	3·8994516	1·0323588	0313445	723	9686555	37
24	2486899	2817	7513101	4·0210722	2567564	3·8947429	1·0324359	0314168	724	9685832	36
25	2489716	2817	7510284	4·0165219	2570664	3·8900448	1·0325130	0314892	725	9685108	35
26	2492533	2817	7507467	4·0119823	2573766	3·8853574	1·0325903	0315617	725	9684383	34
27	2495350	2817	7504650	4·0074532	2576868	3·8806805	1·0326676	0316342	727	9683658	33
28	2498167	2817	7501833	4·0029347	2579970	3·8760142	1·0327451	0317069	727	9682931	32
29	2500984	2816	7499016	3·9984267	2583073	3·8713584	1·0328227	0317796	728	9682204	31
30	2503800	2816	7496200	3·9939292	2586176	3·8667131	1·0329003	0318524	728	9681476	30
31	2506616	2816	7493384	3·9894421	2589280	3·8620782	1·0329781	0319252	730	9680748	29
32	2509432	2816	7490568	3·9849654	2592384	3·8574537	1·0330559	0319982	730	9680018	28
33	2512248	2815	7487752	3·9804991	2595488	3·8528396	1·0331339	0320712	731	9679288	27
34	2515063	2816	7484937	3·9760431	2598593	3·8482358	1·0332119	0321443	732	9678557	26
35	2517879	2815	7482121	3·9715975	2601699	3·8436424	1·03329[illegible]	[illegible]322175	733	9677825	25
36	2520694	2814	7479306	3·9671621	2604805	3·8390591	1·03336[illegible]	0322908	734	9677092	24
37	2523508	2815	7476492	3·9627369	2607911	3·8344861	1·0334467	0323642	734	9676358	23
38	2526323	2814	7473677	3·9583219	2611018	3·8299233	1·0335251	0324376	736	9675624	22
39	2529137	2815	7470863	3·9539171	2614126	3·8253707	1·0336037	0325112	736	9674888	21
40	2531952	2814	7468048	3·9495224	2617234	3·8208281	1·0336823	0325848	737	9674152	20
41	2534766	2813	7465234	3·9451379	2620342	3·8162957	1·0337611	0326585	737	9673415	19
42	2537579	2814	7462421	3·9407633	2623451	3·8117733	1·0338399	0327322	739	9672678	18
43	2540393	2813	7459607	3·9363988	26[illegible]560	3·8072609	1·0339188	0328061	739	9671939	17
44	2543206	2813	7456794	3·9320443	2629670	3·8027585	1·0339979	0328800	741	9671200	16
45	2546019	2813	7453981	3·9276997	[illegible]	[illegible]	1·0340770	0329541	741	9670459	15
46	[illegible]	2813	[illegible]	[illegible]	[illegible]	[illegible]	1·0341563	0330282	741	9669718	14
47	255164[illegible]	2813	[illegible]	3·9190403	[illegible]	[illegible]	1·0342356	[illegible]	743	9668977	13
48	[illegible]	2812	[illegible]	3·9147254	[illegible]	[illegible]	[illegible]	[illegible]31706	744	9668234	12
49	[illegible]	2812	[illegible]	3·9101204	2645226	[illegible]	[illegible]	[illegible]	744	9667490	11
50	[illegible]	2812	[illegible]	[illegible]	[illegible]	[illegible]	1·0344743	[illegible]	745	[illegible]	10
51	[illegible]	2811	[illegible]	[illegible]	2651452	[illegible]	[illegible]	0333999	746	[illegible]	9
52	[illegible]	2812	7434295	[illegible]	2654566	3·7670947	[illegible]	0334745	747	[illegible]	8
53	[illegible]	2811	[illegible]	[illegible]	[illegible]	3·7626807	1·0347134	0335492	747	[illegible]	7
54	[illegible]	2811	7428672	3·8890411	2660794	[illegible]	1·0347938	0336239	749	9663761	6
55	[illegible]	2811	[illegible]	3·8847943	2663909	[illegible]	1·0348740	0336988	749	[illegible]	5
56	[illegible]	2810	7423050	3·8805570	2667025	3·7494963	1·0349542	0337737	750	[illegible]	4
57	2579760	2810	7420240	3·876329	2670141	3·7451267	1·0350346	0338487	751	[illegible]	3
58	2582570	2811	7417430	3·8721112	2673257	3·7407546	1·0351150	03392[illegible]	751	[illegible]	2
59	258538[illegible]	2809	7414619	3·8679025	2676374	3·7363980	1·0351955	0339989	753	9660011	1
60	2588190		7411810	3·8637035	2679492	3·7320508	1·0352762	0340744		9659258	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	′

′	Sine	Dif.	Cosec.	Verseds	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·4129962	4712	10·5870038	8·5324253	9·4280525	5050	10·5719475	9·8699243	10·0150562	339	9·9849438	60
1	9·4134674	4707	10·5865326	8·5333844	9·4285575	5046	10·5714425	9·8697596	10·0150901	339	9·9849099	59
2	9·4139381	4701	10·5860619	8·5343423	9·4290621	5040	10·5709379	9·8695949	10·0151240	340	9·9848760	58
3	9·4144082	4696	10·5855918	8·5352997	9·4295661	5036	10·5704339	9·8694301	10·0151580	339	9·9848420	57
4	9·4148778	4690	10·5851222	8·5362551	9·4300697	5030	10·5699303	9·8692653	10·0151919	341	9·9848081	56
5	9·4153468	4684	10·5846532	8·5372098	9·4305727	5026	10·5694273	9·8691004	10·0152260	340	9·9847740	55
6	9·4158152	4680	10·5841848	8·5381635	9·4310753	5020	10·5689247	9·8689355	10·0152600	341	9·9847400	54
7	9·4162832	4674	10·5837168	8·5391161	9·4315773	5016	10·5684227	9·8687706	10·0152941	342	9·9847059	53
8	9·4167506	4668	10·5832494	8·5400677	9·4320789	5010	10·5679211	9·8686056	10·0153283	342	9·9846717	52
9	9·4172174	4663	10·5827826	8·5410182	9·4325799	5005	10·5674201	9·8684405	10·0153625	342	9·9846375	51
10	9·4176837	4658	10·5823163	8·5419676	9·4330804	5001	10·5669196	9·8682754	10·0153967	343	9·9846033	50
11	9·4181495	4653	10·5818505	8·5429160	9·4335805	4995	10·5664195	9·8681102	10·0154310	343	9·9845690	49
12	9·4186148	4647	10·5813852	8·5438633	9·4340800	4991	10·5659200	9·8679450	10·0154653	343	9·9845347	48
13	9·4190795	4641	10·5809205	8·5448096	9·4345791	4985	10·5654209	9·8677798	10·0154996	344	9·9845004	47
14	9·4195436	4637	10·5804564	8·5457548	9·4350776	4981	10·5649224	9·8676145	10·0155340	344	9·9844660	46
15	9·4200073	4631	10·5799927	8·5466990	9·4355757	4976	10·5644243	9·8674491	10·0155684	345	9·9844316	45
16	9·4204704	4626	10·5795296	8·5476422	9·4360733	4971	10·5639267	9·8672837	10·0156029	345	9·9843971	44
17	9·4209330	4620	10·5790670	8·5485843	9·4365704	4966	10·5634296	9·8671182	10·0156374	345	9·9843626	43
18	9·4213950	4616	10·5786050	8·5495253	9·4370670	4961	10·5629330	9·8669527	10·0156719	346	9·9843281	42
19	9·4218566	4610	10·5781434	8·5504654	9·4375631	4956	10·5624369	9·8667872	10·0157065	346	9·9842935	41
20	9·4223176	4604	10·5776824	8·5514044	9·4380587	4951	10·5619413	9·8666216	10·0157411	347	9·9842589	40
21	9·4227780	4600	10·5772220	8·5523423	9·4385538	4947	10·5614462	9·8664559	10·0157758	347	9·9842242	39
22	9·4232380	4594	10·5767620	8·5532793	9·4390485	4941	10·5609515	9·8662902	10·0158105	347	9·9841895	38
23	9·4236974	4589	10·5763026	8·5542152	9·4395426	4937	10·5604574	9·8661244	10·0158452	348	9·9841548	37
24	9·4241563	4584	10·5758437	8·5551500	9·4400363	4932	10·5599637	9·8659586	10·0158800	348	9·9841200	36
25	9·4246147	4579	10·5753853	8·5560839	9·4405295	4927	10·5594705	9·8657928	10·0159148	349	9·9840852	35
26	9·4250726	4573	10·5749274	8·5570167	9·4410222	4923	10·5589778	9·8656269	10·0159497	349	9·9840503	34
27	9·4255299	4568	10·5744701	8·5579485	9·4415145	4917	10·5584855	9·8654609	10·0159846	349	9·9840154	33
28	9·4259867	4563	10·5740133	8·5588791	9·4420062	4913	10·5579938	9·8652949	10·0160195	350	9·9839805	32
29	9·4264430	4558	10·5735570	8·5598091	9·4424975	4908	10·5575025	9·8651288	10·0160545	350	9·9839455	31
30	9·4268988	4553	10·5731012	8·5607379	9·4429883	4903	10·5570117	9·8649627	10·0160895	350	9·9839105	30
31	9·4273541	4548	10·5726459	8·5616656	9·4434786	4899	10·5565214	9·8647966	10·0161245	351	9·9838755	29
32	9·4278089	4542	10·5721911	8·5625924	9·4439685	4894	10·5560315	9·8646303	10·0161596	352	9·9838404	28
33	9·4282631	4538	10·5717369	8·5635181	9·4444579	4889	10·5555421	9·8644641	10·0161948	351	9·9838052	27
34	9·4287169	4532	10·5712831	8·5644429	9·4449468	4884	10·5550532	9·8642978	10·0162299	353	9·9837701	26
35	9·4291701	4527	10·5708299	8·5653666	9·4454352	4880	10·5545648	9·8641314	10·0162652	352	9·9837348	25
36	9·4296228	4522	10·5703772	8·5662894	9·4459232	4875	10·5540768	9·8639650	10·0163004	353	9·9836996	24
37	9·4300750	4517	10·5699250	8·5672111	9·4464107	4871	10·5535893	9·8637985	10·0163357	353	9·9836643	23
38	9·4305267	4512	10·5694733	8·5681318	9·4468978	4865	10·5531022	9·8636320	10·0163710	354	9·9836290	22
39	9·4309779	4507	10·5690221	8·5690516	9·4473843	4861	10·5526157	9·8634655	10·0164064	354	9·9835936	21
40	9·4314286	4502	10·5685714	8·5699704	9·4478704	4857	10·5521296	9·8632989	10·0164418	355	9·9835582	20
41	9·4318788	4497	10·5681212	8·5708881	9·4483561	4852	10·5516439	9·8631322	10·0164773	355	9·9835227	19
42	9·4323285	4492	10·5676715	8·5718049	9·4488413	4847	10·5511587	9·8629655	10·0165128	355	9·9834872	18
43	9·4327777	4487	10·5672223	8·5727207	9·4493260	4842	10·5506740	9·8627987	10·0165483	356	9·9834517	17
44	9·4332264	4482	10·5667736	8·5736355	9·4498102	4838	10·5501898	9·8626319	10·0165839	356	9·9834161	16
45	9·4336746	4477	10·5663254	8·5745494	9·4502940	4834	10·5497060	9·8624651	10·0166195	356	9·9833805	15
46	9·4341223	4471	10·5658777	8·5754622	9·4507774	4828	10·5492226	9·8622981	10·0166551	357	9·9833449	14
47	9·4345694	4467	10·5654306	8·5763741	9·4512602	4825	10·5487398	9·8621312	10·0166908	357	9·9833092	13
48	9·4350161	4462	10·5649839	8·5772850	9·4517427	4819	10·5482573	9·8619642	10·0167265	358	9·9832735	12
49	9·4354623	4457	10·5645377	8·5781950	9·4522246	4815	10·5477754	9·8617971	10·0167623	358	9·9832377	11
50	9·4359080	4452	10·5640920	8·5791039	9·4527061	4811	10·5472939	9·8616300	10·0167981	358	9·9832019	10
51	9·4363532	4448	10·5636468	8·5800119	9·4531872	4806	10·5468128	9·8614628	10·0168339	359	9·9831661	9
52	9·4367980	4442	10·5632020	8·5809189	9·4536678	4801	10·5463322	9·8612956	10·0168698	360	9·9831302	8
53	9·4372422	4437	10·5627578	8·5818250	9·4541479	4797	10·5458521	9·8611283	10·0169058	359	9·9830942	7
54	9·4376859	4433	10·5623141	8·5827301	9·4546276	4793	10·5453724	9·8609610	10·0169417	360	9·9830583	6
55	9·4381292	4427	10·5618708	8·5836342	9·4551069	4788	10·5448931	9·8607936	10·0169777	361	9·9830223	5
56	9·4385719	4423	10·5614281	8·5845374	9·4555857	4784	10·5444143	9·8606262	10·0170138	361	9·9829862	4
57	9·4390142	4418	10·5609858	8·5854396	9·4560641	4779	10·5439359	9·8604588	10·0170499	361	9·9829501	3
58	9·4394560	4413	10·5605440	8·5863409	9·4565420	4774	10·5434580	9·8602912	10·0170860	362	9·9829140	2
59	9·4398973	4408	10·5601027	8·5872412	9·4570194	4770	10·5429806	9·8601237	10·0171222	362	9·9828778	1
60	9·4403381		10·5596619	8·5881406	9·4574964		10·5425036	9·8599560	10·0171584		9·9828416	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	′
0	2756374	2796	7243626	3·6279553	2867454	3·4874144	1·0402994	0387383	802	9612617	60
1	2759170	2795	7240830	3·6242783	2870602	3·4835996	1·0403862	0388185	803	9611815	59
2	2761965	2796	7238035	3·6206101	2873751	3·4797726	1·0404732	0388988	804	9611012	58
3	2764761	2795	7235239	3·6169492	2876900	3·4759632	1·0405602	0389792	805	9610208	57
4	2767556	2796	7232444	3·6132957	2880050	3·4721616	1·0406473	0390597	805	9609403	56
5	2770352	2795	7229648	3·6096501	2883201	3·4683676	1·0407346	0391402	806	9608598	55
6	2773147	2794	7226853	3·6060121	2886352	3·4645813	1·0408219	0392208	808	9607792	54
7	2775941	2795	7224059	3·6023818	2889503	3·4608026	1·0409094	0393016	807	9606984	53
8	2778736	2794	7221264	3·5987580	2892655	3·4570315	1·0409969	0393823	809	9606177	52
9	2781530	2794	7218470	3·5951449	2895808	3·4532679	1·0410845	0394632	810	9605368	51
10	2784324	2794	7215676	3·5915363	2898961	3·4495120	1·0411723	0395442	810	9604558	50
11	2787118	2793	7212882	3·5879362	2902114	3·4457635	1·0412601	0396252	811	9603748	49
12	2789911	2793	7210089	3·5843437	2905269	3·4420226	1·0413481	0397063	812	9602937	48
13	2792704	2793	7207296	3·5807546	2908423	3·4382891	1·0414362	0397875	813	9602125	47
14	2795497	2793	7204503	3·5771810	2911578	3·4345631	1·0415243	0398688	813	9601312	46
15	2798290	2793	7201710	3·5736108	2914734	3·4308446	1·0416126	0399501	815	9600499	45
16	2801083	2792	7198917	3·5700481	2917890	3·4271334	1·0417009	0400316	815	9599684	44
17	2803875	2792	7196125	3·5664924	2921047	3·4234297	1·0417894	0401131	816	9598869	43
18	2806667	2792	7193333	3·5629446	2924205	3·4197333	1·0418780	0401947	817	9598053	42
19	2809459	2792	7190541	3·5594042	2927363	3·4160443	1·0419667	0402764	818	9597236	41
20	2812251	2791	7187749	3·5558710	2930521	3·4123626	1·0420554	0403582	818	9596418	40
21	2815042	2791	7184958	3·5523450	2933680	3·4086882	1·0421443	0404400	819	9595600	39
22	2817833	2791	7182167	3·5488263	2936839	3·4050210	1·0422333	0405219	820	9594781	38
23	2820624	2791	7179376	3·5453149	2939999	3·4013612	1·0423224	0406039	821	9593961	37
24	2823415	2790	7176585	3·5418107	2943160	3·3977085	1·0424116	0406860	822	9593140	36
25	2826205	2790	7173795	3·5383138	2946321	3·3940631	1·0425009	0407682	822	9592318	35
26	2828995	2790	7171005	3·5348240	2949483	3·3904249	1·0425903	0408504	824	9591496	34
27	2831785	2790	7168215	3·5313414	2952645	3·3867938	1·0426798	0409328	824	9590672	33
28	2834575	2789	7165425	3·5278660	2955808	3·3831699	1·0427694	0410152	825	9589848	32
29	2837364	2789	7162636	3·5243977	2958971	3·3795531	1·0428591	0410977	826	9589023	31
30	2840153	2789	7159847	3·5209365	2962135	3·3759434	1·0429489	0411803	826	9588197	30
31	2842942	2789	7157058	3·5174824	2965299	3·3723408	1·0430388	0412629	828	9587371	29
32	2845731	2789	7154269	3·5140354	2968464	3·3687453	1·0431289	0413457	828	9586543	28
33	2848520	2788	7151480	3·5105954	2971630	3·3651568	1·0432190	0414285	829	9585715	27
34	2851308	2788	7148692	3·5071625	2974796	3·3615753	1·0433092	0415114	830	9584886	26
35	2854096	2788	7145904	3·5037365	2977962	3·3580008	1·0433995	0415944	830	9584056	25
36	2856884	2787	7143116	3·5003175	2981129	3·3544333	1·0434900	0416774	832	9583226	24
37	2859671	2787	7140329	3·4969055	2984297	3·3508728	1·0435805	0417606	832	9582394	23
38	2862458	2788	7137542	3·4935004	2987465	3·3473191	1·0436712	0418438	833	9581562	22
39	2865246	2786	7134754	3·4901023	2990634	3·3437724	1·0437619	0419271	834	9580729	21
40	2868032	2787	7131968	3·4867110	2993803	3·3402326	1·0438528	0420105	835	9579895	20
41	2870819	2786	7129181	3·4833267	2996973	3·3366997	1·0439437	0420940	835	9579060	19
42	2873605	2786	7126395	3·4799492	3000144	3·3331736	1·0440348	0421775	836	9578225	18
43	2876391	2786	7123609	3·4765785	3003315	3·3296543	1·0441259	0422611	837	9577389	17
44	2879177	2786	7120823	3·4732146	3006486	3·3261419	1·0442172	0423448	838	9576552	16
45	2881963	2785	7118037	3·4698576	3009658	3·3226362	1·0443086	0424286	839	9575714	15
46	2884748	2785	7115252	3·4665073	3012831	3·3191373	1·0444001	0425125	840	9574875	14
47	2887533	2785	7112467	3·4631637	3016004	3·3156452	1·0444917	0425965	840	9574035	13
48	2890318	2785	7109682	3·4598269	3019178	3·3121598	1·0445833	0426805	841	9573195	12
49	2893103	2784	7106897	3·4564969	3022352	3·3086811	1·0446751	0427646	842	9572354	11
50	2895887	2784	7104113	3·4531735	3025527	3·3052091	1·0447670	0428488	843	9571512	10
51	2898671	2784	7101329	3·4498568	3028703	3·3017438	1·0448590	0429331	844	9570669	9
52	2901455	2784	7098545	3·4465467	3031879	3·2982851	1·0449511	0430175	844	9569825	8
53	2904239	2783	7095761	3·4432433	3035055	3·2948330	1·0450433	0431019	845	9568981	7
54	2907022	2783	7092978	3·4399465	3038232	3·2913876	1·0451357	0431864	846	9568136	6
55	2909805	2783	7090195	3·4366563	3041410	3·2879487	1·0452281	0432710	847	9567290	5
56	2912588	2783	7087412	3·4333727	3044588	3·2845164	1·0453206	0433557	848	9566443	4
57	2915371	2782	7084629	3·4300956	3047767	3·2810907	1·0454132	0434405	848	9565595	3
58	2918153	2782	7081847	3·4268251	3050946	3·2776715	1·0455060	0435253	849	9564747	2
59	2920935	2782	7079065	3·4235611	3054126	3·2742588	1·0455988	0436102	850	9563898	1
60	2923717		7076283	3·4203036	3057307	3·2708526	1·0456918	0436952		9563048	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	′

′	Sine	Dif.	Cosec.	Versed.	Tang.	Dif.	Cotang	Covers.	Secant	D.	Cosine	′
0	9·4403381	4403	10·5596619	8·5881406	9·4574964	4766	10·5425036	9·8599556	10·0171584	362	9·9828416	60
1	9·4407784	4398	10·5592216	8·5890390	9·4579730	4761	10·5420270	9·8597881	10·0171946	363	9·9828054	59
2	9·4412182	4394	10·5587818	8·5899365	9·4584491	4757	10·5415509	9·8596206	10·0172309	363	9·9827691	58
3	9·4416576	4389	10·5583424	8·5908330	9·4589248	4753	10·5410752	9·8594529	10·0172672	364	9·9827328	57
4	9·4420965	4384	10·5579035	8·5917286	9·4594001	4748	10·5405999	9·8592851	10·0173036	364	9·9826964	56
5	9·4425349	4379	10·5574651	8·5926233	9·4598749	4743	10·5401251	9·8591172	10·0173400	364	9·9826600	55
6	9·4429728	4375	10·5570272	8·5935170	9·4603492	4740	10·5396508	9·8589492	10·0173764	365	9·9826236	54
7	9·4434103	4369	10·5565897	8·5944097	9·4608232	4735	10·5391768	9·8587813	10·0174129	365	9·9825871	53
8	9·4438472	4365	10·5561528	8·5953016	9·4612967	4730	10·5387033	9·8586132	10·0174494	366	9·9825506	52
9	9·4442837	4360	10·5557163	8·5961925	9·4617697	4726	10·5382303	9·8584452	10·0174860	366	9·9825140	51
10	9·4447197	4356	10·5552803	8·5970824	9·4622423	4722	10·5377577	9·8582770	10·0175226	366	9·9824774	50
11	9·4451553	4351	10·5548447	8·5979715	9·4627145	4718	10·5372855	9·8581089	10·0175592	367	9·9824408	49
12	9·4455904	4346	10·5544096	8·5988596	9·4631863	4713	10·5368137	9·8579406	10·0175959	367	9·9824041	48
13	9·4460250	4341	10·5539750	8·5997468	9·4636576	4709	10·5363424	9·8577723	10·0176326	368	9·9823674	47
14	9·4464591	4336	10·5535409	8·6006330	9·4641285	4705	10·5358715	9·8576040	10·0176694	368	9·9823306	46
15	9·4468927	4332	10·5531073	8·6015184	9·4645990	4700	10·5354010	9·8574356	10·0177062	369	9·9822938	45
16	9·4473259	4327	10·5526741	8·6024028	9·4650690	4696	10·5349310	9·8572672	10·0177431	368	9·9822569	44
17	9·4477586	4323	10·5522414	8·6032863	9·4655386	4692	10·5344614	9·8570987	10·0177799	370	9·9822201	43
18	9·4481909	4318	10·5518091	8·6041689	9·4660078	4687	10·5339922	9·8569302	10·0178169	369	9·9821831	42
19	9·4486227	4313	10·5513773	8·6050506	9·4664765	4683	10·5335235	9·8567616	10·0178538	370	9·9821462	41
20	9·4490540	4309	10·5509460	8·6059313	9·4669448	4679	10·5330552	9·8565929	10·0178908	371	9·9821092	40
21	9·4494849	4304	10·5505151	8·6068112	9·4674127	4675	10·5325873	9·8564242	10·0179279	370	9·9820721	39
22	9·4499153	4299	10·5500847	8·6076901	9·4678802	4671	10·5321198	9·8562555	10·0179649	372	9·9820351	38
23	9·4503452	4295	10·5496548	8·6085681	9·4683473	4666	10·5316527	9·8560867	10·0180021	371	9·9819979	37
24	9·4507747	4290	10·5492253	8·6094453	9·4688139	4662	10·5311861	9·8559179	10·0180392	372	9·9819608	36
25	9·4512037	4285	10·5487963	8·6103215	9·4692801	4658	10·5307199	9·8557490	10·0180764	373	9·9819236	35
26	9·4516322	4281	10·5483678	8·6111968	9·4697459	4653	10·5302541	9·8555800	10·0181137	373	9·9818863	34
27	9·4520603	4276	10·5479397	8·6120712	9·4702112	4650	10·5297888	9·8554110	10·0181510	373	9·9818490	33
28	9·4524879	4272	10·5475121	8·6129448	9·4706762	4645	10·5293238	9·8552420	10·0181883	373	9·9818117	32
29	9·4529151	4267	10·5470849	8·6138174	9·4711407	4641	10·5288593	9·8550729	10·0182256	374	9·9817744	31
30	9·4533418	4263	10·5466582	8·6146891	9·4716048	4637	10·5283952	9·8549037	10·0182630	375	9·9817370	30
31	9·4537681	4258	10·5462319	8·6155600	9·4720685	4633	10·5279315	9·8547345	10·0183005	375	9·9816995	29
32	9·4541939	4253	10·5458061	8·6164299	9·4725318	4629	10·5274682	9·8545653	10·0183380	375	9·9816620	28
33	9·4546192	4249	10·5453808	8·6172990	9·4729947	4625	10·5270053	9·8543959	10·0183755	375	9·9816245	27
34	9·4550441	4245	10·5449559	8·6181672	9·4734572	4620	10·5265428	9·8542266	10·0184130	376	9·9815870	26
35	9·4554686	4240	10·5445314	8·6190345	9·4739192	4616	10·5260808	9·8540572	10·0184506	377	9·9815494	25
36	9·4558926	4235	10·5441074	8·6199009	9·4743808	4613	10·5256192	9·8538877	10·0184883	377	9·9815117	24
37	9·4563161	4231	10·5436839	8·6207664	9·4748421	4608	10·5251579	9·8537182	10·0185260	377	9·9814740	23
38	9·4567392	4226	10·5432608	8·6216311	9·4753029	4604	10·5246971	9·8535486	10·0185637	377	9·9814363	22
39	9·4571618	4222	10·5428382	8·6224948	9·4757633	4600	10·5242367	9·8533790	10·0186014	378	9·9813986	21
40	9·4575840	4218	10·5424160	8·6233577	9·4762233	4596	10·5237767	9·8532094	10·0186392	379	9·9813608	20
41	9·4580058	4213	10·5419942	8·6242197	9·4766829	4592	10·5233171	9·8530396	10·0186771	379	9·9813229	19
42	9·4584271	4209	10·5415729	8·6250809	9·4771421	4588	10·5228579	9·8528698	10·0187150	379	9·9812850	18
43	9·4588480	4204	10·5411520	8·6259412	9·4776009	4583	10·5223991	9·8527001	10·0187529	380	9·9812471	17
44	9·4592684	4200	10·5407316	8·6268006	9·4780592	4580	10·5219408	9·8525302	10·0187909	380	9·9812091	16
45	9·4596884	4195	10·5403116	8·6276591	9·4785172	4576	10·5214828	9·8523603	10·0188289	380	9·9811711	15
46	9·4601079	4191	10·5398921	8·6285168	9·4789748	4571	10·5210252	9·8521903	10·0188669	381	9·9811331	14
47	9·4605270	4186	10·5394730	8·6293736	9·4794319	4568	10·5205681	9·8520203	10·0189050	381	9·9810950	13
48	9·4609456	4182	10·5390544	8·6302295	9·4798887	4564	10·5201113	9·8518502	10·0189431	382	9·9810569	12
49	9·4613638	4178	10·5386362	8·6310846	9·4803451	4560	10·5196549	9·8516800	10·0189813	382	9·9810187	11
50	9·4617816	4173	10·5382184	8·6319388	9·4808011	4555	10·5191989	9·8515099	10·0190195	382	9·9809805	10
51	9·4621989	4169	10·5378011	8·6327922	9·4812566	4552	10·5187434	9·8513396	10·0190577	383	9·9809423	9
52	9·4626158	4165	10·5373842	8·6336447	9·4817118	4548	10·5182882	9·8511693	10·0190960	383	9·9809040	8
53	9·4630323	4160	10·5369677	8·6344964	9·4821666	4544	10·5178334	9·8509990	10·0191343	384	9·9808657	7
54	9·4634483	4156	10·5365517	8·6353472	9·4826210	4540	10·5173790	9·8508286	10·0191727	384	9·9808273	6
55	9·4638639	4151	10·5361361	8·6361971	9·4830750	4536	10·5169250	9·8506582	10·0192111	384	9·9807889	5
56	9·4642790	4148	10·5357210	8·6370462	9·4835286	4532	10·5164714	9·8504877	10·0192495	385	9·9807505	4
57	9·4646938	4143	10·5353062	8·6378945	9·4839818	4528	10·5160182	9·8503171	10·0192880	385	9·9807120	3
58	9·4651081	4138	10·5348919	8·6387419	9·4844346	4524	10·5155654	9·8501465	10·0193265	386	9·9806735	2
59	9·4655219	4134	10·5344781	8·6395884	9·4848870	4520	10·5151130	9·8499759	10·0193651	386	9·9806349	1
60	9·4659353		10·5340647	8·6404342	9·4853390		10·5146610	9·8498052	10·0194037		9·9805963	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Versed.	Cosec.	D.	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D	Cosine	'
0	2756374	2796	7243626	3·6279553	2867454	3·4874144	1·0402994	0387383	804	9612617	60
1	2759170	2793	7240830	3·6242788	2870602	3·4835896	1·0403853	0388185	803	9611842	59
2	2761963	2793	7238037	3·6205101	2873751	3·4797726	1·0404732	0388988	804	[illegible]	58
3	2764761	2793	7235239	3·6169490	2876900	3·4759642	1·0405602	0389792	805	[illegible]	57
4	2767556	2794	7232444	3·6132957	2880050	3·4721616	1·0406473	0390597	805	[illegible]	56
5	2770352	2794	7229648	3·6096501	2883201	3·4683676	1·0407346	0391402	806	[illegible]	55
6	2773147	2794	7226853	3·6060121	2886352	3·4645813	1·0408219	0392208	808	[illegible]	54
7	2775941	2795	7224059	3·6023818	2889503	3·4608026	1·0409094	0393016	807	[illegible]	53
8	2778736	2794	7221264	3·5987590	2892655	3·4570315	1·0409969	0393823	808	[illegible]	52
9	2781530	2794	7218470	3·5951439	2895808	3·4532679	1·0410845	0394631	81	[illegible]	51
10	2784324	2794	7215676	3·5915363	2898961	3·4495120	1·0411723	0395442	810	[illegible]	50
11	2787118	2793	7212882	3·5879362	2902114	3·4457635	1·0412601	0396252	811	[illegible]	49
12	2789911	2793	7210089	3·5843437	2905269	3·4420226	1·0413481	0397063	812	[illegible]	48
13	2792704	2793	7207296	3·5807586	2908423	3·4382891	1·0414362	0397875	813	[illegible]	47
14	2795497	2793	7204503	3·5771810	2911578	3·4345631	1·0415243	0398688	813	[illegible]	46
15	2798290	2793	7201710	3·5736108	2914734	3·4308446	1·0416126	0399501	815	[illegible]	45
16	2801083	2792	7198917	3·5700481	2917890	3·4271334	1·0417009	0400316	815	[illegible]	44
17	2803875	2792	7196125	3·5664928	2921047	3·4234297	1·0417894	0401131	816	[illegible]	43
18	2806667	2792	7193333	3·5629448	2924205	3·4197333	1·0418780	0401947	817	[illegible]	42
19	2809459	2792	7190541	3·5594042	2927363	3·4160443	1·0419667	0402764	818	[illegible]	41
20	2812251	2791	7187749	3·5558710	2930521	3·4123626	1·0420554	0403582	818	[illegible]	40
21	2815042	2791	7184958	3·5523450	2933680	3·4086882	1·0421443	0404400	819	[illegible]	39
22	2817833	2791	7182167	3·5488263	2936839	3·4050210	1·0422333	0405219	820	[illegible]	38
23	2820624	2791	7179376	3·5453149	2939999	3·4013612	1·0423224	0406039	821	[illegible]	37
24	2823415	2790	7176585	3·5418107	2943160	3·3977085	1·0424116	0406860	822	[illegible]	36
25	2826205	2790	7173795	3·5383138	2946321	3·3940631	1·0425009	0407682	822	[illegible]	35
26	2828995	2790	7171005	3·5348240	2949483	3·3904249	1·0425903	0408504	824	[illegible]	34
27	2831785	2790	7168215	3·5313414	2952645	3·3867938	1·0426798	0409328	824	[illegible]	33
28	2834575	2789	7165425	3·5278660	2955808	3·3831699	1·0427694	0410152	825	[illegible]	32
29	2837364	2789	7162636	3·5243977	2958971	3·3795531	1·0428591	0410977	826	[illegible]	31
30	2840153	2789	7159847	3·5209365	2962135	3·3759434	1·0429489	0411803	826	[illegible]	30
31	2842942	2789	7157058	3·5174824	2965299	3·3723408	1·0430388	0412629	828	[illegible]	29
32	2845731	2789	7154269	3·5140354	2968464	3·3687453	1·0431289	0413457	828	[illegible]	28
33	2848520	2788	7151480	3·5105954	2971630	3·3651568	1·0432190	0414285	829	[illegible]	27
34	2851308	2788	7148692	3·5071625	2974796	3·3615753	1·0433092	0415114	830	[illegible]	26
35	2854096	2788	7145904	3·5037365	2977962	3·3580008	1·0433995	0415944	830	[illegible]	25
36	2856884	2787	7143116	3·5003175	2981129	3·3544333	1·0434900	0416774	832	[illegible]	24
37	2859671	2787	7140329	3·4969055	2984297	3·3508728	1·0435805	0417606	832	[illegible]	23
38	2862458	2788	7137542	3·4935004	2987465	3·3473191	1·0436712	0418438	833	[illegible]	22
39	2865246	2786	7134754	3·4901023	2990634	3·3437724	1·0437619	0419271	834	[illegible]	21
40	2868032	2787	7131968	3·4867110	2993803	3·3402326	1·0438528	0420105	[illegible]	[illegible]	20
41	2870819	2786	7129181	3·4833267	2996973	3·3366997	1·0439437	0420940	[illegible]	[illegible]	19
42	2873605	2786	7126395	3·4799492	3000144	3·3331736	1·0440348	0421775	836	[illegible]	18
43	2876391	2786	7123609	3·4765785	3003315	3·3296543	1·0441259	0422611	837	[illegible]	17
44	2879177	2786	7120823	3·4732146	3006486	3·3261419	1·0442172	0423448	[illegible]	[illegible]	16
45	2881963	2785	7118037	3·4698576	3009658	3·3226362	1·0443086	0424286	[illegible]	[illegible]	15
46	2884748	2785	7115252	3·4665073	3012831	3·3191373	1·0444001	0425125	[illegible]	[illegible]	14
47	2887533	2785	7112467	3·4631637	3016004	3·3156452	1·0444917	0425965	840	[illegible]	13
48	2890318	2785	7109682	3·4598269	3019178	3·3121598	1·0445833	0426805	[illegible]	[illegible]	12
49	2893103	2784	7106897	3·4564969	3022352	3·3086811	1·0446751	0427646	[illegible]	[illegible]	11
50	2895887	2784	7104113	3·4531735	3025527	3·3052091	1·0447670	0428488	[illegible]	[illegible]	10
51	2898671	2784	7101329	3·4498568	3028703	3·3017438	1·0448590	0429331	[illegible]	[illegible]	9
52	2901455	2784	7098545	3·4465467	3031879	3·2982851	1·0449511	0430175	[illegible]	[illegible]	8
53	2904239	2783	7095761	3·4432433	3035055	3·2948330	1·0450433	0431019	[illegible]	[illegible]	7
54	2907022	2783	7092978	3·4399465	3038232	3·2913876	1·0451357	0431864	[illegible]	[illegible]	6
55	2909805	2783	7090195	3·4366563	3041410	3·2879487	1·0452281	0432710	[illegible]	[illegible]	5
56	2912588	2783	7087412	3·4333727	3044588	3·2845164	1·0453206	0433557	[illegible]	[illegible]	4
57	2915371	2782	7084629	3·4300956	3047767	3·2810907	1·0454132	0434405	[illegible]	[illegible]	3
58	2918153	2782	7081847	3·4268251	3050946	3·2776715	1·0455060	0435253	[illegible]	[illegible]	2
59	2920935	2782	7079065	3·4235611	3054126	3·2742588	1·0455988	0436102	[illegible]	[illegible]	1
60	2923717		7076283	3·4203036	3057307	3·2708526	1·0456918	0436952		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	'

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·4659353	4130	10·5340647	8·6404142	9·4853390	4517	10·5146610	9·8498052	10·0194037	386	9·9805963	60
1	9·4663483	4126	10·5336517	8·6412791	9·4857907	4512	10·5142093	9·8496344	10·0194423	387	9·9805577	59
2	9·4667609	4121	10·5332391	8·6421231	9·4862419	4509	10·5137581	9·8494636	10·0194810	387	9·9805190	58
3	9·4671730	4118	10·5328270	8·6429663	9·4866928	4505	10·5133072	9·8492928	10·0195197	388	9·9804803	57
4	9·4675848	4112	10·5324152	8·6438087	9·4871433	4500	10·5128567	9·8491219	10·0195585	388	9·9804415	56
5	9·4679960	4109	10·5320040	8·6446502	9·4875933	4497	10·5124067	9·8489509	10·0195973	388	9·9804027	55
6	9·4684069	4104	10·5315931	8·6454909	9·4880430	4494	10·5119570	9·8487799	10·0196361	389	9·9803639	54
7	9·4688173	4100	10·5311827	8·6463308	9·4884924	4489	10·5115076	9·8486088	10·0196750	390	9·9803250	53
8	9·4692273	4096	10·5307727	8·6471698	9·4889413	4485	10·5110587	9·8484377	10·0197140	389	9·9802860	52
9	9·4696369	4092	10·5303631	8·6480080	9·4893898	4482	10·5106102	9·8482665	10·0197529	390	9·9802471	51
10	9·4700461	4087	10·5299539	8·6488454	9·4898380	4478	10·5101620	9·8480953	10·0197919	391	9·9802081	50
11	9·4704548	4083	10·5295452	8·6496820	9·4902858	4474	10·5097142	9·8479240	10·0198310	391	9·9801690	49
12	9·4708631	4079	10·5291369	8·6505177	9·4907332	4470	10·5092668	9·8477527	10·0198701	391	9·9801299	48
13	9·4712710	4075	10·5287290	8·6513526	9·4911802	4467	10·5088198	9·8475813	10·0199092	392	9·9800908	47
14	9·4716785	4071	10·5283215	8·6521867	9·4916269	4462	10·5083731	9·8474099	10·0199484	392	9·9800516	46
15	9·4720856	4066	10·5279144	8·6530200	9·4920731	4459	10·5079269	9·8472384	10·0199876	392	9·9800124	45
16	9·4724922	4063	10·5275078	8·6538524	9·4925190	4456	10·5074810	9·8470669	10·0200268	393	9·9799732	44
17	9·4728985	4058	10·5271015	8·6546841	9·4929646	4451	10·5070354	9·8468953	10·0200661	393	9·9799339	43
18	9·4733043	4054	10·5266957	8·6555149	9·4934097	4448	10·5065903	9·8467237	10·0201054	394	9·9798946	42
19	9·4737097	4049	10·5262903	8·6563449	9·4938545	4443	10·5061455	9·8465520	10·0201448	394	9·9798552	41
20	9·4741146	4046	10·5258854	8·6571741	9·4942988	4441	10·5057012	9·8463802	10·0201842	394	9·9798158	40
21	9·4745192	4042	10·5254808	8·6580025	9·4947429	4436	10·5052571	9·8462084	10·0202236	395	9·9797764	39
22	9·4749234	4037	10·5250766	8·6588301	9·4951865	4433	10·5048135	9·8460366	10·0202631	396	9·9797369	38
23	9·4753271	4033	10·5246729	8·6596569	9·4956298	4429	10·5043702	9·8458647	10·0203027	395	9·9796973	37
24	9·4757304	4030	10·5242696	8·6604829	9·4960727	4425	10·5039273	9·8456927	10·0203422	396	9·9796578	36
25	9·4761334	4025	10·5238666	8·6613081	9·4965152	4422	10·5034848	9·8455207	10·0203818	397	9·9796182	35
26	9·4765359	4021	10·5234641	8·6621324	9·4969574	4417	10·5030426	9·8453487	10·0204215	397	9·9795785	34
27	9·4769380	4016	10·5230620	8·6629560	9·4973991	4415	10·5026009	9·8451766	10·0204612	397	9·9795388	33
28	9·4773396	4013	10·5226604	8·6637788	9·4978406	4410	10·5021594	9·8450044	10·0205009	398	9·9794991	32
29	9·4777409	4009	10·5222591	8·6646008	9·4982816	4407	10·5017184	9·8448322	10·0205407	398	9·9794593	31
30	9·4781418	4005	10·5218582	8·6654220	9·4987223	4403	10·5012777	9·8446599	10·0205805	399	9·9794195	30
31	9·4785423	4000	10·5214577	8·6662424	9·4991626	4400	10·5008374	9·8444876	10·0206204	398	9·9793796	29
32	9·4789423	3997	10·5210577	8·6670620	9·4996026	4396	10·5003974	9·8443152	10·0206602	400	9·9793398	28
33	9·4793420	3992	10·5206580	8·6678808	9·5000422	4392	10·4999578	9·8441428	10·0207002	399	9·9792998	27
34	9·4797412	3989	10·5202588	8·6686988	9·5004814	4389	10·4995186	9·8439703	10·0207401	401	9·9792599	26
35	9·4801401	3984	10·5198599	8·6695160	9·5009203	4385	10·4990797	9·8437978	10·0207802	400	9·9792198	25
36	9·4805385	3981	10·5194615	8·6703324	9·5013588	4381	10·4986412	9·8436252	10·0208202	401	9·9791798	24
37	9·4809366	3976	10·5190634	8·6711481	9·5017969	4378	10·4982031	9·8434526	10·0208603	401	9·9791397	23
38	9·4813342	3973	10·5186658	8·6719630	9·5022347	4374	10·4977653	9·8432799	10·0209004	402	9·9790996	22
39	9·4817315	3968	10·5182685	8·6727771	9·5026721	4371	10·4973279	9·8431072	10·0209406	402	9·9790594	21
40	9·4821283	3965	10·5178717	8·6735904	9·5031092	4367	10·4968908	9·8429344	10·0209808	403	9·9790192	20
41	9·4825248	3960	10·5174752	8·6744029	9·5035459	4363	10·4964541	9·8427615	10·0210211	403	9·9789789	19
42	9·4829208	3957	10·5170792	8·6752147	9·5039822	4360	10·4960178	9·8425886	10·0210614	403	9·9789386	18
43	9·4833165	3952	10·5166835	8·6760256	9·5044182	4356	10·4955818	9·8424157	10·0211017	404	9·9788983	17
44	9·4837117	3949	10·5162883	8·6768358	9·5048538	4353	10·4951462	9·8422427	10·0211421	404	9·9788579	16
45	9·4841066	3944	10·5158934	8·6776453	9·5052891	4349	10·4947109	9·8420696	10·0211825	405	9·9788175	15
46	9·4845010	3941	10·5154990	8·6784539	9·5057240	4346	10·4942760	9·8418965	10·0212230	405	9·9787770	14
47	9·4848951	3937	10·5151049	8·6792618	9·5061586	4342	10·4938414	9·8417233	10·0212635	405	9·9787365	13
48	9·4852888	3932	10·5147112	8·6800689	9·5065928	4339	10·4934072	9·8415501	10·0213040	406	9·9786960	12
49	9·4856820	3929	10·5143180	8·6808753	9·5070267	4335	10·4929733	9·8413768	10·0213446	406	9·9786554	11
50	9·4860749	3925	10·5139251	8·6816809	9·5074602	4331	10·4925398	9·8412035	10·0213852	407	9·9786148	10
51	9·4864674	3921	10·5135326	8·6824857	9·5078933	4328	10·4921067	9·8410301	10·0214259	407	9·9785741	9
52	9·4868595	3917	10·5131405	8·6832897	9·5083261	4325	10·4916739	9·8408567	10·0214666	407	9·9785334	8
53	9·4872512	3914	10·5127488	8·6840930	9·5087586	4321	10·4912414	9·8406832	10·0215073	408	9·9784927	7
54	9·4876426	3909	10·5123574	8·6848956	9·5091907	4317	10·4908093	9·8405097	10·0215481	408	9·9784519	6
55	9·4880335	3905	10·5119665	8·6856973	9·5096224	4315	10·4903776	9·8403361	10·0215889	409	9·9784111	5
56	9·4884240	3902	10·5115760	8·6864984	9·5100538	4310	10·4899462	9·8401625	10·0216298	409	9·9783702	4
57	9·4888142	3898	10·5111858	8·6872986	9·5104849	4307	10·4895151	9·8399888	10·0216707	410	9·9783293	3
58	9·4892040	3894	10·5107960	8·6880981	9·5109156	4304	10·4890844	9·8398150	10·0217117	409	9·9782883	2
59	9·4895934	3890	10·5104066	8·6888969	9·5113460	4300	10·4886540	9·8396412	10·0217526	411	9·9782474	1
60	9·4899824		10·5100176	8·6896949	9·5117760		10·4882240	9·8394674	10·0217937		9·9782063	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	′
0	3090170	2766	6909830	3·2360680	3249197	3·0776835	1·0514622	0489435	899	9510565	60
1	3092936	2766	6907064	3·2331736	3252413	3·0746400	1·0515617	0490334	900	9509666	59
2	3095702	2766	6904298	3·2302846	3255630	3·0716020	1·0516612	0491234	901	9508766	58
3	3098468	2766	6901532	3·2274011	3258848	3·0685694	1·0517608	0492135	902	9507865	57
4	3101234	2765	6898766	3·2245230	3262066	3·0655421	1·0518606	0493037	902	9506963	56
5	3103999	2765	6896001	3·2216503	3265284	3·0625203	1·0519605	0493939	904	9506061	55
6	3106764	2765	6893236	3·2187830	3268504	3·0595038	1·0520604	0494843	904	9505157	54
7	3109529	2765	6890471	3·2159210	3271724	3·0564928	1·0521605	0495747	905	9504253	53
8	3112294	2764	6887706	3·2130644	3274944	3·0534870	1·0522607	0496652	905	9503348	52
9	3115058	2764	6884942	3·2102132	3278165	3·0504866	1·0523610	0497557	907	9502443	51
10	3117822	2764	6882178	3·2073673	3281387	3·0474915	1·0524614	0498464	907	9501536	50
11	3120586	2763	6879414	3·2045266	3284610	3·0445018	1·0525619	0499371	908	9500629	49
12	3123349	2763	6876651	3·2016913	3287833	3·0415174	1·0526625	0500279	909	9499721	48
13	3126112	2763	6873888	3·1988613	3291056	3·0385381	1·0527633	0501188	910	9498812	47
14	3128875	2763	6871125	3·1960365	3294281	3·0355641	1·0528641	0502098	911	9497902	46
15	3131638	2762	6868362	3·1932170	3297505	3·0325954	1·0529651	0503009	911	9496991	45
16	3134400	2763	6865600	3·1904028	3300731	3·0296320	1·0530661	0503920	912	9496080	44
17	3137163	2762	6862837	3·1875937	3303957	3·0266737	1·0531673	0504832	913	9495168	43
18	3139925	2761	6860075	3·1847899	3307184	3·0237207	1·0532686	0505745	914	9494255	42
19	3142686	2762	6857314	3·1819912	3310411	3·0207728	1·0533699	0506659	915	9493341	41
20	3145448	2761	6854552	3·1791978	3313639	3·0178301	1·0534714	0507574	915	9492426	40
21	3148209	2760	6851791	3·1764095	3316868	3·0148926	1·0535730	0508489	916	9491511	39
22	3150969	2761	6849031	3·1736264	3320097	3·0119603	1·0536747	0509405	917	9490595	38
23	3153730	2760	6846270	3·1708484	3323327	3·0090330	1·0537765	0510322	918	9489678	37
24	3156490	2760	6843510	3·1680756	3326557	3·0061109	1·0538785	0511240	918	9488760	36
25	3159250	2760	6840750	3·1653078	3329788	3·0031939	1·0539805	0512158	920	9487842	35
26	3162010	2760	6837990	3·1625452	3333020	3·0002820	1·0540826	0513078	920	9486922	34
27	3164770	2759	6835230	3·1597876	3336252	2·9973751	1·0541849	0513998	921	9486002	33
28	3167529	2759	6832471	3·1570351	3339485	2·9944734	1·0542873	0514919	922	9485081	32
29	3170288	2759	6829712	3·1542877	3342719	2·9915766	1·0543897	0515841	922	9484159	31
30	3173047	2758	6826953	3·1515453	3345953	2·9886850	1·0544923	0516763	924	9483237	30
31	3175805	2758	6824195	3·1488079	3349188	2·9857983	1·0545950	0517687	924	9482313	29
32	3178563	2758	6821437	3·1460756	3352424	2·9829167	1·0546978	0518611	925	9481389	28
33	3181321	2758	6818679	3·1433483	3355660	2·9800400	1·0548007	0519536	926	9480464	27
34	3184079	2757	6815921	3·1406259	3358896	2·9771683	1·0549037	0520462	926	9479538	26
35	3186836	2757	6813164	3·1379086	3362134	2·9743016	1·0550068	0521388	928	9478612	25
36	3189593	2757	6810407	3·1351962	3365372	2·9714399	1·0551101	0522316	928	9477684	24
37	3192350	2756	6807650	3·1324887	3368610	2·9685831	1·0552134	0523244	929	9476756	23
38	3195106	2757	6804894	3·1297862	3371850	2·9657312	1·0553169	0524173	930	9475827	22
39	3197863	2756	6802137	3·1270886	3375090	2·9628842	1·0554204	0525103	931	9474897	21
40	3200619	2755	6799381	3·1243959	3378330	2·9600422	1·0555241	0526034	931	9473966	20
41	3203374	2756	6796626	3·1217081	3381571	2·9572050	1·0556279	0526965	932	9473035	19
42	3206130	2755	6793870	3·1190252	3384813	2·9543727	1·0557318	0527897	933	9472103	18
43	3208885	2755	6791115	3·1163472	3388056	2·9515453	1·0558358	0528830	934	9471170	17
44	3211640	2755	6788360	3·1136740	3391299	2·9487227	1·0559399	0529764	935	9470236	16
45	3214395	2754	6785605	3·1110057	3394543	2·9459050	1·0560441	0530699	935	9469301	15
46	3217149	2754	6782851	3·1083422	3397787	2·9430921	1·0561485	0531634	936	9468366	14
47	3219903	2754	6780097	3·1056835	3401032	2·9402840	1·0562529	0532570	937	9467430	13
48	3222657	2754	6777343	3·1030296	3404278	2·9374807	1·0563575	0533507	938	9466493	12
49	3225411	2753	6774589	3·1003805	3407524	2·9346822	1·0564621	0534445	939	9465555	11
50	3228164	2753	6771836	3·0977363	3410771	2·9318885	1·0565669	0535384	939	9464616	10
51	3230917	2753	6769083	3·0950967	3414019	2·9290995	1·0566718	0536323	941	9463677	9
52	3233670	2752	6766330	3·0924620	3417267	2·9263152	1·0567768	0537264	941	9462736	8
53	3236422	2752	6763578	3·0898319	3420516	2·9235358	1·0568819	0538205	941	9461795	7
54	3239174	2752	6760826	3·0872066	3423765	2·9207610	1·0569871	0539146	943	9460854	6
55	3241926	2752	6758074	3·0845860	3427015	2·9179909	1·0570924	0540089	943	9459911	5
56	3244678	2751	6755322	3·0819702	3430266	2·9152256	1·0571978	0541032	945	9458968	4
57	3247429	2751	6752571	3·0793590	3433518	2·9124649	1·0573034	0541977	945	9458023	3
58	3250180	2751	6749820	3·0767525	3436770	2·9097089	1·0574090	0542922	946	9457078	2
59	3252931	2751	6747069	3·0741507	3440023	2·9069576	1·0575148	0543868	946	9456132	1
60	3255682		6744318	3·0715535	3443276	2·9042109	1·0576207	0544814		9455186	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	D.	Sine	′

ne	Dif.	Cosec.	Versed.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	'
9874		10·5100176	[illegible]	[illegible]	4297	[illegible]	[illegible]	10·0217937	410	[illegible]	60
5710	[illegible]	[illegible]	[illegible]	[illegible]	4294	[illegible]	[illegible]	10·0218347	412	[illegible]	59
1492	3879	[illegible]	[illegible]	[illegible]	4290	10·4873649	[illegible]	10·0218759	411	9·9781241	58
1471	3874	10·5088529	[illegible]	9·5130641	4286	10·4869359	9·8389455	10·0219170	412	9·9780830	57
5345	3871	[illegible]	[illegible]	9·5134927	4283	[illegible]	9·8387714	[illegible]	412	9·9780418	56
9216	3867	[illegible]	[illegible]	9·5139210	4280	10·4860790	[illegible]	[illegible]	413	[illegible]	55
3083	[illegible]	[illegible]	[illegible]	9·5143490	4276	10·4856510	[illegible]	10·0220407	413	[illegible]	54
2946	3860	10·5073054	8·6952599	[illegible]	4273	10·4852234	[illegible]	[illegible]	414	[illegible]	53
1806	[illegible]	10·5069194	[illegible]	[illegible]	4270	[illegible]	9·8380746	10·0221234	413	[illegible]	52
6661	3852	10·5065330	[illegible]	[illegible]	4266	10·4843691	[illegible]	10·0221647	415	[illegible]	51
4513	3848	10·5061487	[illegible]	[illegible]	4263	[illegible]	[illegible]	10·0222062	415	[illegible]	50
2361	3844	[illegible]	[illegible]	[illegible]	4259	[illegible]	[illegible]	10·0222477	415	9·9777523	49
2205	3841	[illegible]	[illegible]	[illegible]	4256	10·4830903	[illegible]	[illegible]	415	9·9777108	48
1046	3837	[illegible]	[illegible]	9·5173353	4253	[illegible]	[illegible]	[illegible]	416	9·9776693	47
1883	3833	10·5046117	[illegible]	[illegible]	4249	[illegible]	[illegible]	[illegible]	417	[illegible]	46
716	3829	[illegible]	[illegible]	[illegible]	4246	[illegible]	[illegible]	10·0224140	416	9·9775860	45
545	3825	[illegible]	[illegible]	[illegible]	4243	[illegible]	[illegible]	[illegible]	418	[illegible]	44
370	3822	[illegible]	[illegible]	9·5190344	4239	[illegible]	[illegible]	10·0224974	417	9·9775026	43
0192	3818	[illegible]	[illegible]	[illegible]	4236	[illegible]	[illegible]	[illegible]	418	9·9774609	42
4010	3814	[illegible]	[illegible]	[illegible]	4233	[illegible]	[illegible]	[illegible]	419	9·9774191	41
3824	3811	[illegible]	[illegible]	[illegible]	4230	[illegible]	[illegible]	[illegible]	418	9·9773772	40
1635	3807	[illegible]	[illegible]	[illegible]	4226	[illegible]	[illegible]	[illegible]	420	9·9773354	39
1442	3803	[illegible]	[illegible]	[illegible]	4223	[illegible]	[illegible]	[illegible]	419	9·9772934	38
[illegible]	3800	10·5011755	[illegible]	[illegible]	4220	10·4784270	[illegible]	[illegible]	420	9·9772516	37
1045	[illegible]	[illegible]	[illegible]	9·5219950	4216	10·4780050	[illegible]	[illegible]	421	9·9772095	36
[illegible]	3794	10·5003160	[illegible]	[illegible]	4213	10·4775834	9·8351037	[illegible]	421	9·9771674	35
[illegible]	3788	[illegible]	[illegible]	[illegible]	4210	10·4771621	[illegible]	10·0228747	421	9·9771253	34
1421	[illegible]	[illegible]	[illegible]	[illegible]	4206	10·4767411	[illegible]	10·0229168	422	9·9770832	33
7206	3781	[illegible]	[illegible]	[illegible]	4204	[illegible]	[illegible]	10·0229590	422	9·9770410	32
0987	3777	[illegible]	8·7125157	[illegible]	4200	10·4759001	9·8344024	10·0230012	422	[illegible]	31
0764	3774	[illegible]	8·7132918	9·5245199	4196	10·4754801	[illegible]	10·0230434	423	[illegible]	30
[illegible]	3770	10·4981462	8·7140671	9·5249395	4194	10·4750605	9·8340514	[illegible]	423	9·9769143	29
3308	3767	[illegible]	8·7148418	[illegible]	4190	10·4746411	9·8338759	10·0231280	424	9·9768720	28
075	3763	[illegible]	8·7156157	9·5257779	4187	10·4742221	9·8337002	[illegible]	424	[illegible]	27
838	3759	[illegible]	[illegible]	9·5261966	4184	[illegible]	[illegible]	[illegible]	425	[illegible]	26
507	3756	[illegible]	8·7171614	[illegible]	4181	[illegible]	[illegible]	[illegible]	425	9·9767447	25
353	3752	10·4962647	8·7179332	9·5270331	4177	[illegible]	9·8331731	[illegible]	[illegible]	9·9767022	24
105	3748	[illegible]	8·7187044	[illegible]	4174	10·4725492	[illegible]	10·0233403	426	9·9766597	23
853	3745	10·4955147	8·7194748	[illegible]	4171	[illegible]	[illegible]	[illegible]	426	9·9766171	22
598	3741	[illegible]	8·7202445	[illegible]	4168	10·4717147	[illegible]	[illegible]	427	[illegible]	21
339	3738	[illegible]	[illegible]	9·5287021	4165	10·4712979	[illegible]	[illegible]	427	[illegible]	20
077	3734	[illegible]	[illegible]	[illegible]	4161	[illegible]	[illegible]	10·0235109	427	[illegible]	19
811	3731	[illegible]	8·7225494	9·5295347	4158	10·4704653	[illegible]	10·0235536	428	9·9764464	18
542	3727	[illegible]	8·7233163	9·5299505	4156	10·4700495	[illegible]	[illegible]	428	9·9764036	17
269	3724	[illegible]	8·7240825	9·5303661	4152	10·4696339	9·8317649	10·0236392	429	9·9763608	16
992	3720	[illegible]	[illegible]	[illegible]	4148	[illegible]	9·8315886	10·0236821	429	9·9763179	15
712	3716	[illegible]	8·7256129	9·5311961	4146	10·4688039	9·8314123	10·0237250	429	9·9762750	14
428	3713	10·4921572	[illegible]	9·5316107	4143	10·4683893	9·8312359	10·0237679	430	9·9762321	13
141	3709	10·4917859	8·7271464	9·5320250	4139	10·4679750	9·8310595	10·0238109	430	9·9761891	12
850	3706	10·4914150	[illegible]	[illegible]	4137	[illegible]	9·8308830	10·0238539	431	9·9761461	11
566	3703	10·4910444	[illegible]	9·5328526	4133	10·4671474	9·8307064	10·0238970	431	9·9761030	10
264	3699	[illegible]	[illegible]	9·5332659	4130	[illegible]	9·8305299	10·0239401	432	[illegible]	9
956	3695	[illegible]	8·7301874	[illegible]	4127	[illegible]	9·8303532	[illegible]	431	9·9760167	8
[illegible]	[illegible]	[illegible]	8·7309474	9·5340916	4124	[illegible]	9·8301765	10·0240264	433	[illegible]	7
343	[illegible]	10·4895657	8·7317067	9·5345040	4121	10·4654960	9·8299997	10·0240697	[illegible]	9·9759303	6
081	[illegible]	10·4891969	8·7324654	9·5349161	4117	[illegible]	[illegible]	10·0241130	[illegible]	[illegible]	5
716	[illegible]	[illegible]	[illegible]	[illegible]	4115	10·4646722	9·8296461	10·0241563	[illegible]	[illegible]	4
397	[illegible]	[illegible]	[illegible]	9·5357394	4112	[illegible]	9·8294692	10·0241996	433	[illegible]	3
074	[illegible]	[illegible]	[illegible]	[illegible]	4109	10·4638495	[illegible]	10·0242430	435	[illegible]	2
749	3670	10·4877251	[illegible]	[illegible]	4106	10·4634387	9·8291152	10·0242865	434	9·9757135	1
419		[illegible]	8·7362486	9·5369719		[illegible]	[illegible]	[illegible]		9·9756701	0
ne	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Versed.	Cosec.	D.	Sine	'

'	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	D.	Cosine	'
0	3255682	2750	6744318	3·0715535	3443276	2·9042109	1·0576207	0544814	948	9455186	60
1	3258432	2750	6741568	3·0689610	3446530	2·9014688	1·0577267	0545762	948	9454238	59
2	3261182	2750	6738818	3·0663731	3449785	2·8987314	1·0578328	0546710	949	9453290	58
3	3263932	2749	6736068	3·0637898	3453040	2·8959986	1·0579390	0547659	950	9452341	57
4	3266681	2749	6733319	3·0612111	3456296	2·8932704	1·0580453	0548609	950	9451391	56
5	3269430	2749	6730570	3·0586370	3459553	2·8905467	1·0581517	0549559	952	9450441	55
6	3272179	2749	6727821	3·0560675	3462810	2·8878277	1·0582583	0550511	952	9449489	54
7	3274928	2748	6725072	3·0535026	3466068	2·8851132	1·0583649	0551463	953	9448537	53
8	3277676	2748	6722324	3·0509423	3469327	2·8824033	1·0584717	0552416	954	9447584	52
9	3280424	2748	6719576	3·0483864	3472586	2·8796979	1·0585786	0553370	955	9446630	51
10	3283172	2747	6716828	3·0458352	3475846	2·8769970	1·0586855	0554325	955	9445675	50
11	3285919	2747	6714081	3·0432884	3479107	2·8743007	1·0587926	0555280	956	9444720	49
12	3288666	2747	6711334	3·0407462	3482368	2·8716088	1·0588999	0556236	957	9443764	48
13	3291413	2747	6708587	3·0382084	3485630	2·8689215	1·0590072	0557193	958	9442807	47
14	3294160	2746	6705840	3·0356752	3488893	2·8662386	1·0591146	0558151	959	9441849	46
15	3296906	2747	6703094	3·0331464	3492156	2·8635602	1·0592221	0559110	959	9440890	45
16	3299653	2745	6700347	3·0306221	3495420	2·8608863	1·0593298	0560069	960	9439931	44
17	3302398	2746	6697602	3·0281023	3498685	2·8582168	1·0594376	0561029	961	9438971	43
18	3305144	2745	6694856	3·0255869	3501950	2·8555517	1·0595454	0561990	962	9438010	42
19	3307889	2745	6692111	3·0230759	3505216	2·8528911	1·0596534	0562952	963	9437048	41
20	3310634	2745	6689366	3·0205693	3508483	2·8502349	1·0597615	0563915	963	9436085	40
21	3313379	2744	6686621	3·0180672	3511750	2·8475831	1·0598697	0564878	965	9435122	39
22	3316123	2744	6683877	3·0155694	3515018	2·8449356	1·0599781	0565843	965	9434157	38
23	3318867	2744	6681133	3·0130760	3518287	2·8422926	1·0600865	0566808	965	9433192	37
24	3321611	2744	6678389	3·0105870	3521556	2·8396539	1·0601951	0567773	967	9432227	36
25	3324355	2743	6675645	3·0081024	3524826	2·8370196	1·0603037	0568740	967	9431260	35
26	3327098	2743	6672902	3·0056221	3528096	2·8343896	1·0604125	0569707	969	9430293	34
27	3329841	2743	6670159	3·0031462	3531368	2·8317639	1·0605214	0570676	969	9429324	33
28	3332584	2742	6667416	3·0006746	3534640	2·8291426	1·0606304	0571645	969	9428355	32
29	3335326	2743	6664674	2·9982073	3537912	2·8265256	1·0607395	0572614	971	9427386	31
30	3338069	2741	6661931	2·9957443	3541186	2·8239129	1·0608487	0573585	971	9426415	30
31	3340810	2742	6659190	2·9932856	3544460	2·8213045	1·0609580	0574556	973	9425444	29
32	3343552	2741	6656448	2·9908312	3547734	2·8187003	1·0610675	0575529	973	9424471	28
33	3346293	2741	6653707	2·9883811	3551010	2·8161004	1·0611770	0576502	973	9423498	27
34	3349034	2741	6650966	2·9859352	3554286	2·8135048	1·0612867	0577475	975	9422525	26
35	3351775	2741	6648225	2·9834936	3557562	2·8109134	1·0613965	0578450	975	9421550	25
36	3354516	2740	6645484	2·9810563	3560840	2·8083263	1·0615064	0579425	977	9420575	24
37	3357256	2740	6642744	2·9786231	3564118	2·8057433	1·0616164	0580402	977	9419598	23
38	3359996	2739	6640004	2·9761942	3567397	2·8031646	1·0617265	0581379	977	9418621	22
39	3362735	2740	6637265	2·9737695	3570676	2·8005901	1·0618367	0582356	979	9417644	21
40	3365475	2739	6634525	2·9713490	3573956	2·7980198	1·0619471	0583335	979	9416665	20
41	3368214	2739	6631786	2·9689327	3577237	2·7954537	1·0620575	0584314	981	9415686	19
42	3370953	2738	6629047	2·9665205	3580518	2·7928917	1·0621681	0585295	981	9414705	18
43	3373691	2738	6626309	2·9641125	3583801	2·7903339	1·0622788	0586276	981	9413724	17
44	3376429	2738	6623571	2·9617087	3587083	2·7877802	1·0623896	0587257	983	9412743	16
45	3379167	2738	6620833	2·9593090	3590367	2·7852307	1·0625005	0588240	983	9411760	15
46	3381905	2737	6618095	2·9569135	3593651	2·7826853	1·0626115	0589223	984	9410777	14
47	3384642	2737	6615358	2·9545221	3596936	2·7801440	1·0627227	0590207	985	9409793	13
48	3387379	2737	6612621	2·9521348	3600222	2·7776069	1·0628339	0591192	986	9408808	12
49	3390116	2736	6609884	2·9497516	3603508	2·7750738	1·0629453	0592178	987	9407822	11
50	3392852	2737	6607148	2·9473725	3606795	2·7725448	1·0630568	0593165	987	9406835	10
51	3395589	2736	6604411	2·9449975	3610082	2·7700199	1·0631684	0594152	988	9405848	9
52	3398325	2735	6601675	2·9426266	3613371	2·7674990	1·0632801	0595140	989	9404860	8
53	3401060	2736	6598940	2·9402597	3616660	2·7649822	1·0633919	0596129	990	9403871	7
54	3403796	2735	6596204	2·9378968	3619949	2·7624695	1·0635038	0597119	990	9402881	6
55	3406531	2734	6593469	2·9355380	3623240	2·7599608	1·0636158	0598109	992	9401891	5
56	3409265	2735	6590735	2·9331833	3626531	2·7574561	1·0637280	0599101	992	9400899	4
57	3412000	2734	6588000	2·9308326	3629823	2·7549554	1·0638403	0600093	993	9399907	3
58	3414734	2734	6585266	2·9284858	3633115	2·7524588	1·0639527	0601086	993	9398914	2
59	3417468	2733	6582532	2·9261431	3636408	2·7499661	1·0640652	0602079	995	9397921	1
60	3420201		6579799	2·9238044	3639702	2·7474774	1·0641779	0603074		9396926	0
'	Cosine	Dif.	Vers.	Secant	Cotang.	Tang.	Cosec.	Covers	D.	Sine	'

Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
10·4873583	8·7362485	9·5369719	4102	10·4630281	9·8289381	10·0243299	436	9·9756701	60
10·4869914	8·7370030	9·5373821	4099	10·4626179	9·8287609	[illegible]	435	9·9756265	59
10·4866250	8·7377570	9·5377920	4097	10·4622080	9·8285837	10·0244170	436	9·9755830	58
10·4862590	8·7385102	9·5382017	4093	10·4617983	9·8284065	10·0244606	437	9·9755394	57
10·4858953	8·7392628	9·5386110	4090	10·4613890	9·8282292	10·0245043	436	9·9754957	56
10·4855279	8·7400147	9·5390200	4087	10·4609800	9·8280518	10·0245479	438	9·9754521	55
10·4851629	8·7407659	9·5394287	4084	10·4605713	9·8278744	10·0245917	437	9·9754083	54
10·4847983	8·7415165	9·5398371	4082	10·4601629	9·8276970	10·0246354	438	9·9753646	53
10·4844340	8·7422664	9·5402453	4078	10·4597547	9·8275194	10·0246792	439	9·9753208	52
10·4840700	8·7430156	9·5406531	4075	10·4593469	9·8273419	10·0247231	439	9·9752769	51
10·4837064	8·7437642	9·5410606	4072	10·4589394	9·8271642	10·0247670	439	9·9752330	50
10·4833431	8·7445121	9·5414678	4069	10·4585322	9·8269866	10·0248109	440	9·9751891	49
10·4829802	8·7452593	9·5418747	4066	10·4581253	9·8268088	10·0248549	440	9·9751451	48
10·4826176	8·7460059	9·5422813	4064	10·4577187	9·8266310	10·0248989	441	9·9751011	47
10·4822553	8·7467518	9·5426877	4060	10·4573123	9·8264532	10·0249430	441	9·9750570	46
10·4818934	8·7474971	9·5430937	4057	10·4569063	9·8262753	10·0249871	441	9·9750129	45
10·4815318	8·7482417	9·5434994	4054	10·4565006	9·8260973	10·0250312	442	9·9749688	44
10·4811705	8·7489857	9·5439048	4052	10·4560952	9·8259193	10·0250754	442	9·9749246	43
10·4808096	8·7497290	9·5443100	4048	10·4556900	9·8257412	10·0251196	443	9·9748804	42
10·4804490	8·7504716	9·5447148	4045	10·4552852	9·8255631	10·0251639	443	9·9748361	41
10·4800888	8·7512136	9·5451193	4043	10·4548807	9·8253849	10·0252082	443	9·9747918	40
10·4797289	8·7519549	9·5455236	4040	10·4544764	9·8252067	10·0252525	444	9·9747475	39
10·4793693	8·7526956	9·5459276	4036	10·4540724	9·8250284	10·0252969	444	9·9747031	38
10·4790101	8·7534357	9·5463312	4034	10·4536688	9·8248501	10·0253413	445	9·9746587	37
10·4786512	8·7541751	9·5467346	4031	10·4532654	9·8246717	10·0253858	445	9·9746142	36
10·4782926	8·7549138	9·5471377	4028	10·4528623	9·8244932	10·0254303	445	9·9745697	35
10·4779344	8·7556519	9·5475405	4025	10·4524595	9·8243147	10·0254748	446	9·9745252	34
10·4775765	8·7563894	9·5479430	4022	10·4520570	9·8241362	10·0255194	447	9·9744806	33
10·4772189	8·7571262	9·5483452	4019	10·4516548	9·8239576	10·0255641	446	9·9744359	32
10·4768617	8·7578623	9·5487471	4016	10·4512529	9·8237789	10·0256087	447	9·9743913	31
10·4765047	8·7585979	9·5491487	4013	10·4508513	9·8236002	10·0256534	448	9·9743466	30
10·4761482	8·7593327	9·5495500	4011	10·4504500	9·8234214	10·0256982	448	9·9743018	29
10·4757919	8·7600670	9·5499511	4008	10·4500489	9·8232426	10·0257430	448	9·9742570	28
10·4754360	8·7608006	9·5503519	4004	10·4496481	9·8230636	10·0257878	449	9·9742122	27
10·4750804	8·7615336	9·5507523	4002	10·4492477	9·8228847	10·0258327	449	9·9741673	26
10·4747251	8·7622659	9·5511525	3999	10·4488475	9·8227057	10·0258776	450	9·9741224	25
10·4743702	8·7629976	9·5515524	3997	10·4484476	9·8225266	10·0259226	450	9·9740774	24
10·4740156	8·7637286	9·5519521	3993	10·4480479	9·8223475	10·0259676	451	9·9740324	23
10·4736613	8·7644591	9·5523514	3990	10·4476486	9·8221684	10·0260127	451	9·9739873	22
10·4733073	8·7651889	9·5527504	3988	10·4472496	9·8219891	10·0260578	451	9·9739422	21
10·4729537	8·7659180	9·5531492	3985	10·4468508	9·8218099	10·0261029	452	9·9738971	20
10·4726005	8·7666466	9·5535477	3982	10·4464523	9·8216305	10·0261481	452	9·9738519	19
10·4722474	8·7673745	9·5539459	3979	10·4460541	9·8214511	10·0261933	452	9·9738067	18
10·4718947	8·7681018	9·5543438	3977	10·4456562	9·8212717	10·0262385	453	9·9737615	17
10·4715423	8·7688284	9·5547415	3973	10·4452585	9·8210922	10·0262838	453	9·9737162	16
10·4711903	8·7695544	9·5551388	3971	10·4448612	9·8209126	10·0263291	454	9·9736709	15
[illegible]	8·7702798	9·5555359	3968	10·4444641	9·8207330	10·0263745	454	9·9736255	14
10·4704872	8·7710046	9·5559327	3965	10·4440673	9·8205533	10·0264199	455	9·9735801	13
10·4701362	8·7717288	9·5563292	3963	10·4436708	9·8203736	10·0264654	455	9·9735346	12
10·4697854	8·7724523	9·5567255	3959	10·4432745	[illegible]	10·0265109	456	9·9734891	11
10·4694350	8·7731752	9·5571214	3957	10·4428786	9·8200140	10·0265565	455	9·9734435	10
10·4690849	8·7738975	9·5575171	3954	10·4424829	9·8198341	10·0266020	457	9·9733980	9
10·4687351	8·7746192	9·5579125	3952	10·4420875	9·8196542	10·0266477	456	9·9733523	8
10·4683857	[illegible]	[illegible]	3948	10·4416923	9·8194742	10·0266933	457	9·9733067	7
10·4680365	8·7760607	9·5587025	3946	10·4412975	9·8192941	10·0267390	458	9·9732610	6
10·4676877	8·7767805	9·5590971	3943	10·4409029	9·8191140	10·0267848	458	9·9732152	5
10·4673392	8·7774997	9·5594914	3940	10·4405086	[illegible]	10·0268306	458	9·9731694	4
10·4669910	8·7782183	9·5598854	3938	[illegible]	[illegible]	[illegible]	459	9·9731236	3
10·4666431	8·7789363	9·5602792	3935	10·4397208	9·8185733	10·0269223	459	9·9730777	2
10·4662956	8·7796537	9·5606727	3932	10·4393273	[illegible]	10·0269682	460	9·9730318	1
10·4659483	8·7803705	9·5610659		10·4389341	9·8182126	10·0270142		9·9729858	0
Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

Deg. 70.

′	Sine	Dif.	Covers.	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	3420201	2734	6579799	2·9238044	3639702	2·7474774	1·0641778	0603074	995	9396926	60
1	3422935	2733	6577065	2·9214697	3642997	2·7449927	1·0642905	0604069	996	9395931	59
2	3425668	2732	6574332	2·9191389	3646292	2·7425120	1·0644033	0605065	997	93949[illegible]	58
3	3428400	2733	6571600	2·9168121	3649588	2·7400352	1·0645163	0606062	998	939393[illegible]	57
4	3431133	2732	6568867	2·9144892	3652885	2·7375623	1·0646294	0607060	998	939[illegible]	56
5	3433865	2732	6566135	2·9121703	3656182	2·7350934	1·0647425	0608058	999	9391[illegible]	55
6	3436597	2732	6563403	2·9098553	3659480	2·7326284	1·0648558	0609057	1001	939[illegible]	54
7	3439329	2731	6560671	2·9075443	3662779	2·7301674	1·0649693	0610058	1000	9389942	53
8	3442060	2731	6557940	2·9052372	3666079	2·7277102	1·0650828	0611058	1002	938[illegible]	52
9	3444791	2730	6555209	2·9029339	3669379	2·7252569	1·0651964	0612060	1002	9387[illegible]	51
10	3447521	2731	6552479	2·9006346	3672680	2·7228076	1·0653102	0613062	1004	[illegible]	50
11	3450252	2730	6549748	2·8983391	3675981	2·7203620	1·0654240	0614066	1004	[illegible]	49
12	3452982	2740	6547018	2·8960475	3679284	2·7179204	1·0655380	0615070	1005	[illegible]	48
13	3455712	2729	6544288	2·8937598	3682587	2·7154826	1·0656521	0616075	1005	938[illegible]	47
14	3458441	2730	6541559	2·8914760	3685890	2·7130487	1·0657663	0617080	1007	9382[illegible]	46
15	3461171	2729	6538829	2·8891960	3689195	2·7106186	1·0658807	0618087	1007	[illegible]	45
16	3463900	2728	6536100	2·8869198	3692500	2·7081923	1·0659951	0619094	1008	[illegible]	44
17	3466628	2729	6533372	2·8846474	3695806	2·7057690	1·0661097	0620102	1009	9379[illegible]	43
18	3469357	2728	6530643	2·8823789	3699112	2·7033513	1·0662243	0621111	1009	9378[illegible]	42
19	3472085	2727	6527915	2·8801142	3702420	2·7009364	1·0663391	0622120	1011	9377[illegible]	41
20	3474812	2728	6525188	2·8778532	3705728	2·6985254	1·0664540	0623131	1011	9376[illegible]	40
21	3477540	2727	6522460	2·8755961	3709036	2·6961181	1·0665690	0624142	1012	9375[illegible]	39
22	3480267	2727	6519733	2·8733426	3712346	2·6937147	1·0666842	0625154	1013	9374[illegible]	38
23	3482994	2726	6517006	2·8710932	3715656	2·6913149	1·0667994	0626167	1013	9373[illegible]	37
24	3485720	2727	6514280	2·8688474	3718967	2·6889190	1·0669148	0627180	1014	9372[illegible]	36
25	3488447	2726	6511553	2·8666053	3722278	2·6865267	1·0670302	0628194	1016	9371[illegible]	35
26	3491173	2725	6508827	2·8643670	3725590	2·6841383	1·0671458	0629210	1016	9370[illegible]	34
27	3493898	2726	6506102	2·8621324	3728903	2·6817535	1·0672615	0630226	1016	9369[illegible]	33
28	3496624	2725	6503376	2·8599015	3732217	2·6793725	1·0673774	0631242	1017	936[illegible]	32
29	3499349	2725	6500651	2·8576744	3735532	2·6769951	1·0674933	0632260	1018	93677[illegible]	31
30	3502074	2724	6497926	2·8554510	3738847	2·6746215	1·0676094	0633276	1019	[illegible]	30
31	3504798	2725	6495202	2·8532312	3742163	2·6722516	1·0677255	0634297	1020	9365703	29
32	3507523	2723	6492477	2·8510152	3745479	2·6698853	1·0678418	0635317	1021	9364683	28
33	3510246	2724	6489754	2·8488028	3748797	2·6675227	1·0679582	0636338	1021	9363662	27
34	3512970	2723	6487030	2·8465941	3752115	2·6651638	1·0680747	0637359	1023	9362641	26
35	3515693	2723	6484307	2·8443891	3755433	2·6628085	1·0681914	0638382	1023	9361618	25
36	3518416	2722	6481584	2·8421877	3758753	2·6604569	1·0683081	0639405	1024	9360595	24
37	3521139	2722	6478861	2·8399899	3762073	2·6581089	1·0684250	0640429	1024	9359571	23
38	3523862	2722	6476138	2·8377958	3765394	2·6557645	1·0685420	0641453	1026	9358547	22
39	3526584	2722	6473416	2·8356054	3768716	2·6534238	1·0686591	0642479	1026	9357521	21
40	3529306	2721	6470694	2·8334185	3772038	2·6510867	1·0687763	0643505	1027	9356495	20
41	3532027	2721	6467973	2·8312353	3775361	2·6487541	1·0688936	0644532	1028	9355468	19
42	3534748	2721	6465252	2·8290556	3778685	2·6464232	1·0690110	0645560	1028	9354440	18
43	3537469	2721	6462531	2·8268796	3782010	2·6440969	1·0691286	0646588	1030	9353412	17
44	3540190	2720	6459810	2·8247071	3785335	2·6417741	1·0692463	0647618	1030	9352382	16
45	3542910	2720	6457090	2·8225382	3788661	2·6394549	1·0693641	0648648	1031	9351352	15
46	3545630	2720	6454370	2·8203729	3791988	2·6371392	1·0694820	0649679	1032	9350321	14
47	3548350	2720	6451650	2·8182111	3795315	2·6348271	1·0696000	0650711	1032	9349289	13
48	3551070	2719	6448930	2·8160529	3798644	2·6325186	1·0697182	0651743	1034	9348257	12
49	3553789	2719	6446211	2·8138982	3801973	2·6302136	1·0698364	0652777	1034	9347223	11
50	3556508	2718	6443492	2·8117471	3805302	2·6279121	1·0699548	0653811	1035	9346189	10
51	3559226	2718	6440774	2·8095995	3808633	2·6256141	1·0700733	0654846	1035	9345154	9
52	3561944	2718	6438056	2·8074554	3811964	2·6233196	1·0701919	0655881	1037	9344119	8
53	3564662	2718	6435338	2·8053148	3815296	2·6210286	1·0703106	0656918	1037	9343082	7
54	3567380	2717	6432620	2·8031777	3818629	2·6187411	1·0704295	0657955	1038	9342045	6
55	3570097	2717	6429903	2·8010441	3821962	2·6164571	1·0705484	0658993	1039	9341007	5
56	3572814	2717	6427186	2·7989140	3825296	2·6141768	1·0706675	0660032	1040	9339968	4
57	3575531	2717	6424469	2·7967873	3828631	2·6118995	1·0707867	0661072	1040	9338928	3
58	3578248	2716	6421752	2·7946641	3831967	2·6096259	1·0709060	0662112	1042	9337888	2
59	3580964	2715	6419036	2·7925444	3835303	2·6073558	1·0710254	0663154	1042	9336846	1
60	3583679		6416321	2·7904281	3838640	2·6050891	1·0711450	0664196		9335806	0
	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers.	Dif.	Sine	′

Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine
9·5340517	3469	10·4659483	8·7803705	9·5610659	3929	10·4389341	9·8182126	10·0270142	460	9·9729858
9·5343986	3466	10·4656014	8·7810860	9·5614588	3927	10·4385412	9·8180322	10·0270602	460	9·9729398
9·5347452	3463	10·4652548	8·7818022	9·5618515	3924	10·4381485	9·8178516	10·0271062	461	9·9728938
9·5350915	3460	10·4649085	8·7825171	9·5622439	3921	10·4377561	9·8176711	10·0271523	461	9·9728477
9·5354375	3457	10·4645625	8·7832314	9·5626360	3918	10·4373640	9·8174905	10·0271984	462	9·9728016
9·5357832	3454	10·4642168	8·7839452	9·5630278	3916	10·4369722	9·8173098	10·0272446	462	9·9727554
9·5361286	3451	10·4638714	8·7846583	9·5634194	3913	10·4365806	9·8171291	10·0272908	463	9·9727092
9·5364737	3447	10·4635263	8·7853708	9·5638107	3911	10·4361893	9·8169483	10·0273371	463	9·9726629
9·5368184	3445	10·4631816	8·7860827	9·5642018	3907	10·4357982	9·8167675	10·0273834	463	9·9726166
9·5371629	3441	10·4628371	8·7867940	9·5645925	3906	10·4354075	9·8165866	10·0274297	464	9·9725703
9·5375070	3438	10·4624930	8·7875047	9·5649831	3902	10·4350169	9·8164056	10·0274761	464	9·9725239
9·5378508	3435	10·4621492	8·7882149	9·5653733	3900	10·4346267	9·8162246	10·0275225	465	9·9724775
9·5381943	3432	10·4618057	8·7889244	9·5657633	3897	10·4342367	9·8160435	10·0275690	465	9·9724310
9·5385375	3429	10·4614625	8·7896334	9·5661530	3894	10·4338470	9·8158621	10·0276155	465	9·9723845
9·5388804	3426	10·4611196	8·7903416	9·5665424	3892	10·4334576	9·8156812	10·0276620	466	9·9723380
9·5392230	3423	10·4607770	8·7910494	9·5669316	3889	10·4330684	9·8155000	10·0277086	466	9·9722914
9·5395653	3420	10·4604347	8·7917565	9·5673205	3886	10·4326795	9·8153187	10·0277552	467	9·9722448
9·5399073	3416	10·4600927	8·7924630	9·5677091	3884	10·4322909	9·8151374	10·0278019	467	9·9721981
9·5402489	3414	10·4597511	8·7931690	9·5680975	3881	10·4319025	9·8149560	10·0278486	467	9·9721514
9·5405903	3411	10·4594097	8·7938743	9·5684856	3879	10·4315144	9·8147745	10·0278953	468	9·9721047
9·5409314	3407	10·4590686	8·7945791	9·5688735	3876	10·4311265	9·8145930	10·0279421	469	9·9720579
9·5412721	3405	10·4587279	8·7952833	9·5692611	3873	10·4307389	9·8144114	10·0279890	468	9·9720110
9·5416126	3401	10·4583874	8·7959869	9·5696484	3871	10·4303516	9·8142298	10·0280358	470	9·9719642
9·5419527	3399	10·4580473	8·7966899	9·5700355	3868	10·4299645	9·8140481	10·0280828	469	9·9719172
9·5422926	3395	10·4577074	8·7973923	9·5704223	3865	10·4295777	9·8138664	10·0281297	470	9·9718703
9·5426321	3392	10·4573679	8·7980941	9·5708088	3863	10·4291912	9·8136846	10·0281767	471	9·9718233
9·5429713	3390	10·4570287	8·7987953	9·5711951	3860	10·4288049	9·8135027	10·0282238	471	9·9717762
9·5433103	3386	10·4566897	8·7994960	9·5715811	3858	10·4284189	9·8133208	10·0282709	471	9·9717291
9·5436489	3384	10·4563511	8·8001961	9·5719669	3855	10·4280331	9·8131389	10·0283180	472	9·9716820
9·5439873	3380	10·4560127	8·8008956	9·5723524	3853	10·4276476	9·8129569	10·0283652	472	9·9716348
9·5443253	3377	10·4556747	8·8015945	9·5727377	3850	10·4272623	9·8127748	10·0284124	472	9·9715876
9·5446630	3375	10·4553370	8·8022928	9·5731227	3847	10·4268773	9·8125926	10·0284596	473	9·9715404
9·5450005	3371	10·4549995	8·8029906	9·5735074	3845	10·4264926	9·8124104	10·0285069	474	9·9714931
9·5453376	3369	10·4546624	8·8036877	9·5738919	3842	10·4261081	9·8122282	10·0285543	473	9·9714457
9·5456745	3365	10·4543255	8·8043843	9·5742761	3840	10·4257239	9·8120459	10·0286016	475	9·9713984
9·5460110	3362	10·4539890	8·8050803	9·5746601	3837	10·4253399	9·8118636	10·0286491	474	9·9713509
9·5463472	3360	10·4536528	8·8057758	9·5750438	3834	10·4249562	9·8116811	10·0286965	475	9·9713035
9·5466832	3357	10·4533168	8·8064707	9·5754272	3832	10·4245728	9·8114986	10·0287440	476	9·9712560
9·5470189	3353	10·4529811	8·8071649	9·5758104	3830	10·4241896	9·8113161	10·0287916	476	9·9712084
9·5473542	3351	10·4526458	8·8078587	9·5761934	3827	10·4238066	9·8111335	10·0288392	476	9·9711608
9·5476893	3347	10·4523107	8·8085518	9·5765761	3824	10·4234239	9·8109509	10·0288868	477	9·9711132
9·5480240	3345	10·4519760	8·8092444	9·5769585	3822	10·4230415	9·8107682	10·0289345	477	9·9710655
9·5483585	3342	10·4516415	8·8099364	9·5773407	3819	10·4226593	9·8105854	10·0289822	477	9·9710178
9·5486927	3339	10·4513073	8·8106278	9·5777226	3817	10·4222774	9·8104026	10·0290299	478	9·9709701
9·5490266	3336	10·4509734	8·8113187	9·5781043	3815	10·4218957	9·8102197	10·0290777	479	9·9709223
9·5493602	3333	10·4506398	8·8120090	9·5784858	3811	10·4215142	9·8100368	10·0291256	479	9·9708744
9·5496935	3330	10·4503065	8·8126988	9·5788669	3810	10·4211331	9·8098538	10·0291735	479	9·9708265
9·5500265	3327	10·4499735	8·8133879	9·5792479	3807	10·4207521	9·8096708	10·0292214	480	9·9707786
9·5503592	3324	10·4496408	8·8140765	9·5796286	3804	10·4203714	9·8094877	10·0292694	480	9·9707306
9·5506916	3321	10·4493084	8·8147646	9·5800090	3802	10·4199910	9·8093045	10·0293174	480	9·9706826
9·5510237	3319	10·4489763	8·8154521	9·5803892	3799	10·4196108	9·8091213	10·0293654	481	9·9706346
9·5513556	3315	10·4486444	8·8161390	9·5807691	3797	10·4192309	9·8089380	10·0294135	482	9·9705865
9·5516871	3313	10·4483129	8·8168253	9·5811488	3794	10·4188512	9·8087547	10·0294617	481	9·9705383
9·5520184	3310	10·4479816	8·8175111	9·5815282	3792	10·4184718	9·8085713	10·0295098	483	9·9704902
9·5523494	3307	10·4476506	8·8181964	9·5819074	3790	10·4180926	9·8083879	10·0295581	482	9·9704419
9·5526801	3304	10·4473199	8·8188810	9·5822864	3787	10·4177136	9·8082044	10·0296063	483	9·9703937
9·5530105	3301	10·4469895	8·8195652	9·5826651	3784	10·4173349	9·8080208	10·0296546	484	9·9703454
9·5533406	3298	10·4466594	8·8202487	9·5830435	3782	10·4169565	9·8078372	10·0297030	484	9·9702970
9·5536704	3295	10·4463296	8·8209317	9·5834217	3780	10·4165783	9·8076536	10·0297514	484	9·9702486
9·5539999	3293	10·4460001	8·8216142	9·5837997	3777	10·4162003	9·8074698	10·0297998	485	9·9702002
9·5543292		10·4456708	8·8222961	9·5841774		10·4158226	9·8072860	10·0298483		9·9701517
Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	3583679	2710	6416321	2·7904281	3838640	2·6050891	1·07114[illegible]	0664196	1043	9335804	60
1	[illegible]395	2715	6413605	2·7883153	3841978	2·6028254	1·0712647	0665239	1044	9334763	59
2	3589110	2715	6410890	2·7862059	3845317	2·6005659	1·0713844	0666282	1045	93337[illegible]	58
3	3591825	2715	6408175	2·7840999	3848656	2·5983095	1·0715043	0667327	1045	93326[illegible]	57
4	35945[illegible]	2714	6405460	2·7819973	3851996	2·5960564	1·0716244	0668372	1046	9331628	56
5	3597254	2714	6402746	2·7798982	3855337	2·5938068	1·0717445	0669418	1047	93305[illegible]	55
6	3599968	2714	6400032	2·7778024	3858679	2·5915606	1·0718647	067046[illegible]	1047	93295[illegible]	54
7	3602682	2713	6397318	2·7757100	3862021	2·5893177	1·0719851	0671512	1049	932[illegible]	53
8	3605395	2713	6394605	2·7736211	3865364	2·5870782	1·0721056	0672561	1049	9327439	52
9	3608108	2713	6391892	2·7715355	3868708	2·5848421	1·0722262	067[illegible]610	1050	93263[illegible]	51
10	3610821	2713	6389179	2·7694532	[illegible]872053	2·5826094	1·0723469	0674660	1050	93253[illegible]	50
11	3613534	2712	6386466	2·7673744	3875398	2·5803800	1·0724678	0675710	1052	9324290	49
12	3616246	2712	6383754	2·7652988	3878744	2·5781539	1·0725887	0676762	1052	9323238	48
13	3618958	2711	6381042	2·7632267	3882091	2·5759312	1·0727098	0677814	1053	93221[illegible]	47
14	3621669	2711	6378331	2·7611578	388[illegible]439	2·5737118	1·0728310	0678867	1054	9321133	46
15	3624380	2711	6375620	2·7590923	3888787	2·5714957	1·0729523	0679921	1055	9320079	45
16	3627091	2711	6372909	2·7570301	3892136	2·5692830	1·0730737	0680976	1055	9319024	44
17	3629802	2710	6370198	2·7549712	[illegible]89[illegible]486	2·5670735	1·0731953	0682031	1057	9317969	43
18	36[illegible]2512	2710	6367488	2·7529157	3898837	2·5648674	1·0733170	0683088	1057	9316912	42
19	3635222	2710	6364778	2·7508634	3902189	2·5626645	1·0734388	0684145	1058	9315855	41
20	3637932	2709	6362068	2·7488144	3905541	2·5604649	1·0735607	0685203	1058	9314797	40
21	3640641	2710	6359359	2·7467687	3908894	2·5582686	1·0736827	0686263	1060	931373[illegible]	39
22	3643351	2708	6356649	2·7447263	3912247	2·5560756	1·0738048	0687321	1060	9312679	38
23	3646059	2709	6353941	2·742687[illegible]	3915602	2·5538858	1·0739271	0688381	1061	9311619	37
24	3648768	2708	6351232	2·7406512	391[illegible]	2·5516992	1·0740495	0689442	1062	9310558	36
25	3651476	2708	6348524	2·7386186	3922313	2·5495160	1·0741720	0690504	1062	9309496	35
26	3654184	2707	6345816	2·7365892	3925670	2·5473359	1·0742946	0691566	1064	9308434	34
27	365[illegible]	2708	6343109	2·7345630	3929027	2·5451591	1·0744173	0692630	1064	9307370	33
28	3659599	2707	6340401	2·7325406	3932386	2·5429855	1·0745402	0693694	1065	9306306	32
29	3662306	2706	6337694	2·7305203	3935745	2·5408151	1·0746631	0694759	1065	9305241	31
30	3665012	2707	6334988	2·7285034	3939105	2·5386479	1·0747862	0695824	1067	9304176	30
31	3667719	2706	6332281	2·7264905	3942465	2·5364839	1·0749095	0696891	1067	9303109	29
32	3670425	2705	6329575	2·7244804	3945827	2·5343231	1·0750328	0697958	1068	9302042	28
33	3673130	2706	6326870	2·7224735	3949189	2·5321655	1·0751562	0699025	1069	930097[illegible]	27
34	3675836	2705	6324164	2·7204698	3952552	2·5300111	1·0752798	0700095	1070	9299[illegible]	26
35	3678541	2705	6321459	2·7184693	3955916	2·5278598	1·0754035	0701165	1070	[illegible]	25
36	3681246	2704	6318754	2·7164719	3959280	2·5257117	1·0755273	0702235	1071	[illegible]	24
37	3683950	2704	6316050	2·7144777	3962645	2·5235667	1·0756512	0703306	1072	[illegible]	23
38	3686654	2704	6313346	2·7124866	3966011	2·5214219	1·0757753	0704378	1073	[illegible]	22
39	3689358	2703	6310642	2·7104987	3969378	2·5192863	1·0758995	0705451	1074	[illegible]	21
40	3692061	2704	6307939	2·7085139	3972746	2·5171507	1·0760237	0706525	1074	[illegible]	20
41	3694765	2703	6305235	2·7065323	3976114	2·5150183	1·0761481	0707599	1075	[illegible]	19
42	3697468	2702	6302532	2·7045538	3979483	2·5128891	1·0762727	0708674	1076	[illegible]	18
43	3700170	2702	6299830	2·7025784	3982853	2·5107629	1·0763973	0709750	1077	[illegible]	17
44	3702872	2702	6297128	2·7006061	3986224	2·5086398	1·0765221	07108[illegible]7	1077	[illegible]	16
45	3705574	2702	6294426	2·6986370	3989595	2·5065198	1·07[illegible]6470	0711904	1078	[illegible]	15
46	3708276	2701	6291724	2·6966709	3992968	2·5044029	1·0767720	071298[illegible]	1079	[illegible]	14
47	3710977	2701	6289023	2·6947079	3996[illegible]41	2·502289[illegible]	1·0768971	0714062	1080	[illegible]	13
48	3713678	2701	6286322	2·692748[illegible]	3999715	2·500178[illegible]	1·0770224	0715[illegible]	[illegible]	[illegible]	12
49	3716379	2700	6283621	2·6907912	4003089	2·4980707	1·0771477	07[illegible]22[illegible]	[illegible]	[illegible]	11
50	3719079	2701	628092[illegible]	2·6888374	4006465	2·4959661	1·0772732	[illegible]	[illegible]	[illegible]	10
51	3721780	2699	6278[illegible]	2·6868867	40[illegible]841	2·4938[illegible]	1·0773988	0718[illegible]	[illegible]	[illegible]	9
52	3724479	2700	627[illegible]21	2·[illegible]	401321[illegible]	2·4917660	1·0775246	0719469	[illegible]	[illegible]	8
53	3727179	2699	6272821	2·6829945	4016[illegible]	2·4896706	1·0776504	072055[illegible]	1084	[illegible]	7
54	3729878	2699	6270122	2·6810530	4019[illegible]	2·487572[illegible]	1·0777764	07216[illegible]	[illegible]	[illegible]	6
55	3732577	2698	6267423	2·6791145	40233[illegible]	2·4854887	1·0779025	072272[illegible]	[illegible]	[illegible]	5
56	3735275	2698	6264725	2·6771790	4026734	2·483402[illegible]	1·0780287	0723809	[illegible]	[illegible]	4
57	3737973	2698	6262027	2·6752465	4030115	2·4813190	1·0781550	07248[illegible]	[illegible]	[illegible]	3
58	3740671	2698	6259329	2·6733171	4033496	2·4792386	1·0782815	0725984	[illegible]	[illegible]	2
59	3743369	2697	6256631	2·6713906	4036879	2·4771612	1·07840[illegible]	072707[illegible]	[illegible]	[illegible]	1
60	3746066		6253934	2·6694672	4040262	2·4750869	1·0785347	07[illegible]		[illegible]	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·5543292	3289	10·4456708	8·8222961	9·5841774	3775	10·4158226	9·8072860	10·0298481	485	9·9701517	60
1	9·5546581	3287	10·4453419	8·8229774	9·5845549	3772	10·4154451	9·8071022	10·0298966	485	9·9701032	59
2	9·5549868	3284	10·4450132	8·8236582	9·5849321	3770	10·4150679	9·8069183	10·0299451	486	9·9700547	58
3	9·5553152	3281	10·4446848	· 2 3385	9·5853091	3768	10·4146909	9·8067344	10·0299939	487	9·9700061	57
4	9·5556433	3278	10·4443567	8·8250182	9·5856859	3765	10·4143141	9·8065503	10·0300426	487	9·9699574	56
5	9·5559711	3276	10·4440289	8·8256973	9·5860624	3762	10·4139376	9·8063661	10·0300913	487	9·9699087	55
6	9·5562987	3272	10·4437013	8·8263759	9·5864386	3761	10·4135614	9·8061821	10·0301400	488	9·9698600	54
7	9·5566259	3270	10·4433741	8·8270539	9·5868147	3757	10·4131853	9·8059980	10·0301888	488	9·9698112	53
8	9·5569529	3267	10·4430471	8·8277314	9·5871904	3756	10·4128096	9·8058137	10·0302376	488	9·9697624	52
9	9·5572796	3264	10·4427204	8·8284084	9·5875660	3753	10·4124340	9·8056294	10·0302864	489	9·9697136	51
10	9·5576060	3261	10·4423940	8·8290848	9·5879413	3750	10·4120587	9·8054451	10·0303353	489	9·9696647	50
11	9·5579321	3258	10·4420679	8·8297606	9·5883163	3749	10·4116837	9·8052606	10·0303842	490	9·9696158	49
12	9·5582579	3256	10·4417421	8·8304360	9·5886912	3745	10·4113088	9·8050762	10·0304332	491	9·9695668	48
13	9·5585835	3253	10·4414165	8·8311107	9·5890657	3744	10·4109343	9·8048916	10·0304823	490	9·9695177	47
14	9·5589088	3250	10·4410912	8·8317850	9·5894401	3741	10·4105599	9·8047070	10·0305313	491	9·9694687	46
15	9·5592338	3247	10·4407662	8·8324587	9·5898142	3739	10·4101858	9·8045224	10·0305804	492	9·9694196	45
16	9·5595585	3244	10·4404415	8·8331318	9·5901881	3736	10·4098119	9·8043377	10·0306296	492	9·9693704	44
17	9·5598829	3242	10·4401171	8·8338044	9·5905617	3734	10·4094383	9·8041529	10·0306788	492	9·9693212	43
18	9·5602071	3239	10·4397929	8·8344765	9·5909351	3731	10·4090649	9·8039681	10·0307280	493	9·9692720	42
19	9·5605310	3236	10·4394690	8·8351480	9·5913082	3730	10·4086918	9·8037832	10·0307773	493	9·9692227	41
20	9·5608546	3233	10·4391454	8·8358190	9·5916812	3727	10·4083188	9·8035983	10·0308266	493	9·9691734	40
21	9·5611779	3231	10·4388221	8·8364895	9·5920539	3724	10·4079461	9·8034133	10·0308759	495	9·9691241	39
22	9·5615010	3227	10·4384990	8·8371594	9·5924263	3722	10·4075737	9·8032283	10·0309254	494	9·9690746	38
23	9·5618237	3225	10·4381763	8·8378288	9·5927985	3720	10·4072015	9·8030432	10·0309748	495	9·9690252	37
24	9·5621462	3223	10·4378538	8·8384976	9·5931705	3718	10·4068295	9·8028580	10·0310243	495	9·9689757	36
25	9·5624685	3219	10·4375315	8·8391660	9·5935423	3715	10·4064577	9·8026728	10·0310738	496	9·9689262	35
26	9·5627904	3217	10·4372096	8·8398337	9·5939138	3713	10·4060862	9·8024875	10·0311234	496	9·9688766	34
27	9·5631121	3214	10·4368879	8·8405011	9·5942851	3710	10·4057149	9·8023021	10·0311730	497	9·9688270	33
28	9·5634335	3211	10·4365665	8·8411677	9·5946561	3708	10·4053439	9·8021167	10·0312227	497	9·9687773	32
29	9·5637546	3208	10·4362454	8·8418339	9·5950269	3706	10·4049731	9·8019313	10·0312724	497	9·9687276	31
30	9·5640754	3206	10·4359246	8·8424996	9·5953975	3704	10·4046025	9·8017458	10·0313221	498	9·9686779	30
31	9·5643960	3203	10·4356040	8·8431647	9·5957679	3701	10·4042321	9·8015602	10·0313719	498	9·9686281	29
32	9·5647163	3200	10·4352837	8·8438294	9·5961380	3699	10·4038620	9·8013746	10·0314217	499	9·9685783	28
33	9·5650363	3198	10·4349637	8·8444934	9·5965079	3697	10·4034921	9·8011889	10·0314716	499	9·9685284	27
34	9·5653561	3195	10·4346439	8·8451570	9·5968776	3694	10·4031224	9·8010031	10·0315215	499	9·9684785	26
35	9·5656756	3192	10·4343244	8·8458200	9·5972470	3692	10·4027530	9·8008173	10·0315714	500	9·9684286	25
36	9·5659948	3189	10·4340052	8·8464826	9·5976162	3690	10·4023838	9·8006315	10·0316214	501	9·9683786	24
37	9·5663137	3187	10·4336863	8·8471445	9·5979852	3688	10·4020148	9·8004456	10·0316715	501	9·9683285	23
38	9·5666324	3184	10·4333676	8·8478060	9·5983540	3685	10·4016460	9·8002596	10·0317216	501	9·9682784	22
39	9·5669508	3181	10·4330492	8·8484670	9·5987225	3683	10·4012775	9·8000735	10·0317717	502	9·9682283	21
40	9·5672689	3179	10·4327311	8·8491274	9·5990908	3680	10·4009092	9·7998875	10·0318219	502	9·9681781	20
41	9·5675868	3176	10·4324132	8·8497873	9·5994588	3679	10·4005412	9·7997013	10·0318721	502	9·9681279	19
42	9·5679044	3173	10·4320956	8·8504467	9·5998267	3676	10·4001733	9·7995151	10·0319223	503	9·9680777	18
43	9·5682217	3170	10·4317783	8·8511055	9·6001943	3674	10·3998057	9·7993288	10·0319726	503	9·9680274	17
44	9·5685387	3168	10·4314613	8·8517639	9·6005617	3672	10·3994383	9·7991425	10·0320229	504	9·9679771	16
45	9·5688555	3166	10·4311445	8·8524217	9·6009289	3669	10·3990711	9·7989561	10·0320733	504	9·9679267	15
46	9·5691721	3162	10·4308279	8·8530790	9·6012958	3667	10·3987042	9·7987697	10·0321237	505	9·9678763	14
47	9·5694883	3160	10·4305117	8·8537358	9·6016625	3665	10·3983375	9·7985832	10·0321742	505	9·9678258	13
48	9·5698043	3157	10·4301957	8·8543921	9·6020290	3663	10·3979710	9·7983966	10·0322247	506	9·9677753	12
49	9·5701200	3155	10·4298800	8·8550479	9·6023953	3660	10·3976047	9·7982100	10·0322753	506	9·9677247	11
50	9·5704355	3151	10·4295645	8·8557032	9·6027613	3658	10·3972387	9·7980233	10·0323259	506	9·9676741	10
51	9·5707506	3150	10·4292494	8·8563579	9·6031271	3656	10·3968729	9·7978366	10·0323765	507	9·9676235	9
52	9·5710656	3146	10·4289344	8·8570121	9·6034927	3654	10·3965073	9·7976498	10·0324272	507	9·9675728	8
53	9·5713802	3144	10·4286198	8·8576659	9·6038581	3652	10·3961419	9·7974629	10·0324779	508	9·9675221	7
54	9·5716946	3141	10·4283054	8·8583191	9·6042233	3649	10·3957767	9·7972760	10·0325287	508	9·9674713	6
55	9·5720087	3139	10·4279913	8·8589718	9·6045882	3647	10·3954118	9·7970890	10·0325795	508	9·9674205	5
56	9·5723226	3136	10·4276774	8·8596240	9·6049529	3645	10·3950471	9·7969020	10·0326303	509	9·9673697	4
57	9·5726362	3133	10·4273638	8·8602757	9·6053174	3643	10·3946826	9·7967149	10·0326812	509	9·9673188	3
58	9·5729495	3131	10·4270505	8·8609264	9·6056817	3640	10·3943183	9·7965278	10·0327321	510	9·9672679	2
59	9·5732626	3128	10·4267374	8·8615775	9·6060457	3639	10·3939543	9·7963406	10·0327831	510	9·9672169	1
60	9·5735754		10·4264246	8·8622277	9·6064096		10·3935904	9·7961533	10·0328341		9·9671659	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	3746066	2697	6253934	2·6694672	4040262	2·4750869	1·0785347	0728161	1089	9271839	60
1	3748763	2696	6251237	2·6675467	4043646	2·4730155	1·0786616	0729250	1090	9270750	59
2	3751459	2697	6248541	2·6656292	4047031	2·4709470	1·0787883	0730340	1092	9269660	58
3	3754156	2696	6245844	2·6637148	4050417	2·4688816	1·0789151	0731432	1094	9268568	57
4	3756852	2695	6243148	2·6618034	4053804	2·4668191	1·0790427	0732526	1094	9267474	56
5	3759547	2696	6240453	2·6598947	4057191	2·4647596	[illegible]	0733620	1094	[illegible]	55
6	3762243	2695	6237757	2·6579891	4060579	2·4627030	1·0792975	0734714	1094	9265286	54
7	3764938	2694	6235062	2·6560865	4063968	2·4606494	1·0794250	0735808	1096	9264192	53
8	3767632	2695	6232368	2·6541868	4067358	2·4585987	1·0795527	0736904	1096	9263096	52
9	3770327	2694	6229673	2·6522901	4070748	2·4565510	1·0796807	0738000	1098	9262000	51
10	3773021	2693	6226979	2·6503962	4074139	2·4545061	1·0798084	0739098	1097	9260902	50
11	3775714	2694	6224286	2·6485054	4077531	2·4524642	1·0799364	0740195	1099	9259805	49
12	3778408	2693	6221592	2·6466174	4080924	2·4504252	1·0800646	0741294	1100	9258706	48
13	3781101	2693	6218899	2·6447323	4084318	2·4483891	1·0801928	0742394	1100	9257606	47
14	3783794	2692	6216206	2·6428502	4087713	2·4463559	1·0803212	0743494	1101	9256506	46
15	3786486	2692	6213514	2·6409710	4091108	2·4443256	1·0804497	0744595	1102	9255405	45
16	3789178	2692	6210822	2·6390946	4094504	2·4422982	1·0805784	0745697	1102	9254303	44
17	3791870	2692	6208130	2·6372211	4097901	2·4402736	1·0807071	0746799	1104	9253201	43
18	3794562	2691	6205438	2·6353505	4101299	2·4382519	1·0808360	0747903	1104	9252097	42
19	3797253	2691	6202747	2·6334828	4104697	2·4362331	1·0809650	0749007	1105	9250993	41
20	3799944	2690	6200056	2·6316180	4108097	2·4342172	1·0810942	0750112	1106	9249888	40
21	3802634	2690	6197366	2·6297560	4111497	2·4322041	1·0812234	0751218	1106	9248782	39
22	3805324	2690	6194676	2·6278969	4114898	2·4301938	1·0813528	0752324	1108	9247676	38
23	3808014	2690	6191986	2·6260406	4118300	2·4281864	1·0814823	0753432	1108	9246568	37
24	3810704	2689	6189296	2·6241872	4121703	2·4261818	1·0816119	0754540	1109	9245460	36
25	3813393	2689	6186607	2·6223366	4125106	2·4241801	1·0817417	0755649	1109	9244351	35
26	3816082	2688	6183918	2·6204888	4128510	2·4221812	1·0818715	0756758	1111	9243242	34
27	3818770	2689	6181230	2·6186439	4131915	2·4201851	1·0820015	0757869	1111	9242131	33
28	3821459	2688	6178541	2·6168018	4135321	2·4181918	1·0821316	0758980	1112	9241020	32
29	3824147	2687	6175853	2·6149624	4138728	2·4162013	1·0822618	0760092	1113	9239908	31
30	3826834	2688	6173166	2·6131259	4142136	2·4142136	1·0823922	0761205	1113	9238795	30
31	3829522	2687	6170478	2·6112922	4145544	2·4122286	1·0825227	0762318	1115	9237682	29
32	3832209	2686	6167791	2·6094613	4148953	2·4102465	1·0826533	0763433	1115	9236567	28
33	3834895	2687	6165105	2·6076332	4152363	2·4082672	1·0827840	0764548	1116	9235452	27
34	3837582	2686	6162418	2·6058078	4155774	2·4062906	1·0829149	0765664	1116	9234336	26
35	3840268	2685	6159732	2·6039852	4159186	2·4043168	1·0830458	0766780	1118	9233220	25
36	3842953	2686	6157047	2·6021654	4162598	2·4023457	1·0831769	0767898	1118	9232102	24
37	3845639	2685	6154361	2·6003484	4166012	2·4003774	1·0833081	0769016	1119	9230984	23
38	3848324	2684	6151676	2·5985341	4169426	2·3984118	1·0834395	0770135	1120	9229865	22
39	3851008	2685	6148992	2·5967225	4172841	2·3964490	1·0835709	0771255	1121	9228745	21
40	3853693	2684	6146307	2·5949137	4176257	2·3944889	1·0837025	0772376	1121	9227624	20
41	3856377	2684	6143623	2·5931077	4179673	2·3925316	1·0838342	0773497	1122	9226503	19
42	3859060	2684	6140940	2·5913043	4183091	2·3905769	1·0839661	0774619	1123	9225381	18
43	3861744	2683	6138256	2·5895037	4186509	2·3886250	1·0840980	0775742	1124	9224258	17
44	3864427	2683	6135573	2·5877058	4189928	2·3866758	1·0842301	0776866	1124	9223134	16
45	3867110	2682	6132890	2·5859107	4193348	2·3847294	1·0843623	0777990	1126	9222010	15
46	3869792	2682	6130208	2·5841182	4196769	2·3827855	1·0844947	0779116	1126	9220884	14
47	3872474	2682	6127526	2·5823284	4200190	2·3808444	1·0846271	0780242	1126	9219758	13
48	3875156	2681	6124844	2·5805414	4203613	2·3789060	1·0847597	0781368	1128	9218632	12
49	3877837	2681	6122163	2·5787570	4207036	2·3769703	1·0848924	0782496	1129	9217504	11
50	3880518	2681	6119482	2·5769753	4210460	2·3750372	1·0850252	0783625	1129	9216375	10
51	3883199	2681	6116801	2·5751963	4213885	2·3731068	1·0851582	0784754	1130	9215246	9
52	3885880	2680	6114120	2·5734199	4217311	2·3711791	1·0852913	0785884	1130	9214116	8
53	3888560	2680	6111440	2·5716462	4220738	2·3692540	1·0854245	0787014	1132	9212986	7
54	3891240	2679	6108760	2·5698752	4224165	2·3673316	1·0855578	0788146	1132	9211854	6
55	3893919	2679	6106081	2·5681069	4227594	2·3654118	1·0856912	0789278	1133	9210722	5
56	3896598	2679	6103402	2·5663412	4231023	2·3634946	1·0858248	0790411	1134	9209589	4
57	3899277	2678	6100723	2·5645781	4234453	2·3615801	1·0859585	0791545	1135	9208455	3
58	3901955	2678	6098045	2·5628176	4237884	2·3596683	1·0860924	0792680	1135	9207320	2
59	3904633	2678	6095367	2·5610599	4241316	2·3577589	1·0862263	0793815	1136	9206185	1
60	3907311		6092689	2·5593047	4244748	2·3558524	1·0863604	0794951		9205049	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

Dif	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	'
	10·4264245	8·8622277	9·6064096		10·3935904	9·7961533	10·0328341		9·9671659	60
3126	10·4261120	8·8628774	9·6067732	3636	10·3932268	9·7959660	10·0328852	511	9·9671148	59
3123	10·4257997	8·8635265	9·6071366	3634	10·3928634	9·7957786	10·0329363	511	9·9670637	58
3120	10·4254877	8·8641752	9·6074997	3631	10·3925003	9·7955912	10·0329875	512	9·9670125	57
3117	10·4251760	8·8648233	9·6078627	3630	10·3921373	9·7954037	10·0330386	511	9·9669614	56
3116	10·4248644	8·8654710	9·6082254	3627	10·3917746	9·7952161	10·0330899	513	9·9669101	55
3112	10·4245532	8·8661181	9·6085880	3626	10·3914120	9·7950285	10·0331412	513	9·9668588	54
3110	10·4242422	8·8667648	9·6089503	3623	10·3910497	9·7948408	10·0331925	513	9·9668075	53
3107	10·4239315	8·8674109	9·6093124	3621	10·3906876	9·7946531	10·0332438	513	9·9667562	52
3105	10·4236210	8·8680566	9·6096742	3618	10·3903258	9·7944653	10·0332952	514	9·9667048	51
3102	10·4233108	8·8687018	9·6100359	3617	10·3899641	9·7942774	10·0333467	515	9·9666533	50
3099	10·4230009	8·8693464	9·6103973	3614	10·3896027	9·7940895	10·0333982	515	9·9666018	49
3097	10·4226912	8·8699906	9·6107586	3613	10·3892414	9·7939015	10·0334497	515	9·9665503	48
3095	10·4223817	8·8706342	9·6111196	3610	10·3888804	9·7937135	10·0335013	516	9·9664987	47
3092	10·4220725	8·8712774	9·6114804	3608	10·3885196	9·7935254	10·0335529	516	9·9664471	46
3089	10·4217636	8·8719201	9·6118409	3605	10·3881591	9·7933372	10·0336046	517	9·9663954	45
3086	10·4214550	8·8725623	9·6122013	3604	10·3877987	9·7931491	10·0336563	517	9·9663437	44
3085	10·4211465	8·8732040	9·6125615	3602	10·3874385	9·7929608	10·0337080	517	9·9662920	43
3081	10·4208384	8·8738452	9·6129214	3599	10·3870786	9·7927725	10·0337598	518	9·9662402	42
3079	10·4205305	8·8744859	9·6132812	3598	10·3867188	9·7925841	10·0338116	518	9·9661884	41
3077	10·4202228	8·8751261	9·6136407	3595	10·3863593	9·7923956	10·0338635	519	9·9661365	40
3073	10·4199155	8·8757658	9·6140000	3593	10·3860000	9·7922071	10·0339154	519	9·9660846	39
3072	10·4196083	8·8764051	9·6143591	3591	10·3856409	9·7920186	10·0339674	520	9·9660326	38
3069	10·4193014	8·8770438	9·6147180	3589	10·3852820	9·7918300	10·0340194	520	9·9659806	37
3066	10·4189948	8·8776821	9·6150766	3586	10·3849234	9·7916413	10·0340715	521	9·9659285	36
3064	10·4186884	8·8783198	9·6154351	3585	10·3845649	9·7914525	10·0341236	521	9·9658764	35
3061	10·4183823	8·8789571	9·6157934	3583	10·3842066	9·7912637	10·0341757	521	9·9658243	34
3059	10·4180764	8·8795939	9·6161514	3580	10·3838486	9·7910749	10·0342279	522	9·9657721	33
3056	10·4177708	8·8802303	9·6165093	3579	10·3834907	9·7908859	10·0342801	522	9·9657199	32
3053	10·4174655	8·8808661	9·6168669	3576	10·3831331	9·7906970	10·0343323	522	9·9656677	31
3052	10·4171603	8·8815014	9·6172243	3574	10·3827757	9·7905079	10·0343847	524	9·9656153	30
3048	10·4168555	8·8821363	9·6175815	3572	10·3824185	9·7903188	10·0344370	523	9·9655630	29
3046	10·4165509	8·8827707	9·6179385	3570	10·3820615	9·7901297	10·0344894	524	9·9655106	28
3044	10·4162465	8·8834046	9·6182953	3568	10·3817047	9·7899405	10·0345418	524	9·9654582	27
3041	10·4159424	8·8840380	9·6186519	3566	10·3813481	9·7897512	10·0345943	525	9·9654057	26
3039	10·4156385	8·8846710	9·6190083	3564	10·3809917	9·7895618	10·0346468	525	9·9653532	25
3036	10·4153349	8·8853034	9·6193645	3562	10·3806355	9·7893725	10·0346994	526	9·9653006	24
3034	10·4150315	8·8859354	9·6197205	3560	10·3802795	9·7891830	10·0347520	526	9·9652480	23
3031	10·4147284	8·8865669	9·6200762	3557	10·3799238	9·7889935	10·0348047	527	9·9651953	22
3029	10·4144255	8·8871980	9·6204318	3556	10·3795682	9·7888039	10·0348574	527	9·9651426	21
3026	10·4141229	8·8878285	9·6207872	3554	10·3792128	9·7886143	10·0349101	527	9·9650899	20
3024	10·4138205	8·8884586	9·6211423	3551	10·3788577	9·7884246	10·0349629	528	9·9650371	19
3021	10·4135184	8·8890882	9·6214973	3550	10·3785027	9·7882348	10·0350157	528	9·9649843	18
3019	10·4132165	8·8897173	9·6218520	3547	10·3781480	9·7880450	10·0350686	529	9·9649314	17
3016	10·4129149	8·8903460	9·6222066	3546	10·3777934	9·7878551	10·0351215	529	9·9648785	16
3014	10·4126135	8·8909742	9·6225609	3543	10·3774391	9·7876652	10·0351744	529	9·9648256	15
3011	10·4123124	8·8916019	9·6229150	3541	10·3770850	9·7874752	10·0352274	530	9·9647726	14
3009	10·4120115	8·8922291	9·6232690	3540	10·3767310	9·7872852	10·0352805	531	9·9647195	13
3007	10·4117108	8·8928559	9·6236227	3537	10·3763773	9·7870950	10·0353335	530	9·9646665	12
3004	10·4114104	8·8934822	9·6239763	3536	10·3760237	9·7869049	10·0353867	532	9·9646133	11
3001	10·4111103	8·8941080	9·6243296	3533	10·3756704	9·7867146	10·0354398	531	9·9645602	10
3000	10·4108103	8·8947334	9·6246827	3531	10·3753173	9·7865243	10·0354931	533	9·9645069	9
2996	10·4105107	8·8953583	9·6250356	3529	10·3749644	9·7863340	10·0355463	532	9·9644537	8
2995	10·4102112	8·8959827	9·6253884	3528	10·3746116	9·7861436	10·0355996	533	9·9644004	7
2992	10·4099120	8·8966066	9·6257409	3525	10·3742591	9·7859531	10·0356530	534	9·9643470	6
2989	10·4096131	8·8972301	9·6260932	3523	10·3739068	9·7857626	10·0357063	533	9·9642937	5
2987	10·4093144	8·8978532	9·6264454	3522	10·3735546	9·7855720	10·0357598	535	9·9642402	4
2985	10·4090159	8·8984757	9·6267973	3519	10·3732027	9·7853813	10·0358132	534	9·9641868	3
2982	10·4087177	8·8990978	9·6271491	3518	10·3728509	9·7851906	10·0358668	536	9·9641332	2
2980	10·4084197	8·8997194	9·6275006	3515	10·3724994	9·7849998	[illegible]	535	9·9640797	1
2977	10·4081220	8·9003406	9·6278519	3513	10·3721481	9·7848090	10·0359739	536	9·9640261	0
Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	'

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif	Cosine	′
0	3907311	2678	6092689	2·5593047	4244748	2·3558524	1·0863604	0794951	1137	9205049	60
1	3909989	2677	6090011	2·5575521	4248182	2·3539483	1·0864946	0796088	1138	9203912	59
2	3912666	2677	6087334	2·5558022	4251616	2·3520469	1·0866289	0797226	1139	9202774	58
3	3915343	2676	6084657	2·5540548	4255051	2·3501481	1·0867634	0798365	1139	9201635	57
4	3918019	2676	6081981	2·5523101	4258487	2·3482519	1·0868979	0799504	1140	9200496	56
5	3920695	2676	6079305	2·5505680	4261924	2·3463582	1·0870326	0800644	1141	9199356	55
6	3923371	2676	6076629	2·5488284	4265361	2·3444672	1·0871675	0801785	1142	9198215	54
7	3926047	2675	6073953	2·5470915	4268800	2·3425787	1·0873024	0802927	1142	9197073	53
8	3928722	2675	6071278	2·5453571	4272239	2·3406928	1·0874375	0804069	1143	9195931	52
9	3931397	2674	6068603	2·5436253	4275680	2·3388095	1·0875727	0805212	1144	9194788	51
10	3934071	2674	6065929	2·5418961	4279121	2·3369287	1·0877080	0806356	1145	9193644	50
11	3936745	2674	6063255	2·5401694	4282563	2·3350505	1·0878435	0807501	1146	9192499	49
12	3939419	2674	6060581	2·5384453	4286005	2·3331748	1·0879791	0808647	1146	9191353	48
13	3942093	2673	6057907	2·5367238	4289449	2·3313017	1·0881148	[illegible]	1147	9190207	47
14	3944766	2673	6055234	2·5350048	4292894	2·3294311	1·0882506	0810940	1148	9189060	46
15	3947439	2672	6052561	2·5332883	4296339	2·3275630	1·0883866	0812088	1149	9187912	45
16	3950111	2672	6049889	2·5315744	4299785	2·3256975	1·0885226	0813237	1149	9186763	44
17	3952783	2672	6047217	2·5298630	4303232	2·3238345	1·0886589	0814386	1150	9185614	43
18	3955455	2672	6044545	2·5281541	4306680	2·3219740	1·0887952	0815536	1151	9184464	42
19	3958127	2671	6041873	2·5264478	4310129	2·3201160	1·0889317	0816687	1152	9183313	41
20	3960798	2670	6039202	2·5247440	4313579	2·3182606	1·0890682	0817839	1152	9182161	40
21	3963468	2671	6036532	2·5230426	4317030	2·3164076	1·0892050	0818991	1154	9181009	39
22	3966139	2670	6033861	2·5213438	4320481	2·3145571	1·0893418	0820145	1154	9179855	38
23	3968809	2670	6031191	2·5196475	4323933	2·3127092	1·0894788	0821299	1155	9178701	37
24	3971479	2669	6028521	2·5179537	4327386	2·3108637	1·0896159	0822454	1155	9177546	36
25	3974148	2670	6025852	2·5162624	4330840	2·3090206	1·0897531	0823609	1157	9176391	35
26	3976818	2668	6023182	2·5145735	4334295	2·3071801	1·0898904	0824766	1157	9175234	34
27	3979486	2669	6020514	2·5128871	4337751	2·3053420	1·0900279	0825923	1158	9174077	33
28	3982155	2668	6017845	2·5112032	4341208	2·3035064	1·0901655	0827081	1159	9172919	32
29	3984823	2668	6015177	2·5095218	4344665	2·3016732	1·0903032	0828240	1159	9171760	31
30	3987491	2667	6012509	2·5078428	4348124	2·2998425	1·0904411	0829399	1161	9170601	30
31	3990158	2667	6009842	2·5061663	4351583	2·2980143	1·0905791	0830560	1161	9169440	29
32	3992825	2667	6007175	2·5044923	4355043	2·2961885	1·0907172	0831721	1161	9168279	28
33	3995492	2666	6004508	2·5028207	4358504	2·2943651	1·0908554	0832882	1163	9167118	27
34	3998158	2667	6001842	2·5011515	4361966	2·2925442	1·0909938	0834045	1164	9165955	26
35	4000825	2665	5999175	2·4994848	4365429	2·2907257	1·0911323	0835209	1164	9164791	25
36	4003490	2666	5996510	2·4978204	4368893	2·2889096	1·0912709	0836373	1165	9163627	24
37	4006156	[illegible]	5993844	2·4961586	4372357	2·2870959	1·0914097	0837538	1165	9162462	23
38	4008821	[illegible]	5991179	2·4944991	4375823	2·2852846	1·0915485	0838703	1167	9161297	22
39	4011486	[illegible]	5988514	2·4928421	4379289	2·2834758	1·0916876	0839870	1167	9160130	21
40	4014150	2664	5985850	2·4911874	4382756	2·2816693	1·0918267	0841037	1168	9158963	20
41	4016814	2664	5983186	2·4895352	4386224	2·2798653	1·0919659	0842205	1169	9157795	19
42	4019478	2663	5980522	2·4878854	4389693	2·2780636	1·0921053	0843374	1170	9156626	18
43	4022141	2663	5977859	2·4862380	4393163	2·2762643	1·0922448	0844544	1170	9155456	17
44	4024804	2663	5975196	2·4845929	4396634	2·2744674	1·0923845	0845714	1171	9154286	16
45	4027467	2662	5972533	2·4829503	4400105	2·2726729	1·0925243	0846885	1172	9153115	15
46	4030129	2662	5969871	2·4813100	4403578	2·2708807	1·0926642	0848057	1173	9151943	14
47	4032791	2662	5967209	2·4796721	4407051	2·2690909	1·0928042	0849230	1173	9150770	13
48	4035453	2661	5964547	2·4780366	4410526	2·2673035	1·0929444	0850403	1175	9149597	12
49	4038114	2661	5961886	2·4764034	4414001	2·2655184	1·0930846	0851578	1175	9148422	11
50	4040775	2661	5959225	2·4747726	4417477	2·2637357	1·0932251	0852753	1175	9147247	10
51	4043436	2660	5956564	2·4731442	4420954	2·2619554	1·0933656	0853928	1177	9146072	9
52	4046096	2660	5953904	2·4715181	4424432	2·2601773	1·0935063	0855105	1177	9144895	8
53	4048756	2660	5951244	[illegible]	4427910	2·2584016	1·0936471	0856282	1178	9143718	7
54	4051416	2659	5948584	2·4682729	4431390	2·2566283	1·0937880	0857460	1179	9142540	6
55	4054075	2659	5945925	2·4666538	4434871	2·2548572	1·0939291	0858639	1180	9141361	5
56	4056734	2659	5943266	2·4650371	4438352	2·2530885	1·0940702	0859819	1180	9140181	4
57	4059393	2658	5940607	2·4634227	4441834	2·2513221	1·0942116	0860999	1182	9139001	3
58	4062051	2658	[illegible]	2·4618106	4445318	2·2495580	1·0943530	0862181	1182	9137819	2
59	4064709	2657	5935291	2·4602008	4448802	2·2477962	1·0944946	0863363	1182	9136637	1
60	4067366		5932634	2·4585933	4452287	2·2460368	1·0946363	0864545		9135455	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

'	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	'
	10·4081220	8·9003405	9·6278519	3512	10·3721481	9·7848090	10·0359739	537	9·9640261	60
	10·4078245	8·9009613	9·6282031	3509	10·3717969	9·7846181	10·0360276	537	9·9639724	59
	10·4075272	8·9015816	9·6285540	3508	10·3714460	9·7844271	10·0360813	537	9·9639187	58
	10·4072302	8·9022013	9·6289048	3505	10·3710952	9·7842361	10·0361350	538	9·9638650	57
	10·4069334	8·9028207	9·6292553	3504	10·3707447	9·7840450	10·0361888	538	9·9638112	56
	10·4066369	8·9034395	9·6296057	3501	10·3703943	9·7838539	10·0362426	538	9·9637574	55
	10·4063406	8·9040579	9·6299558	3500	10·3700442	9·7836627	10·0362964	540	9·9637036	54
	10·4060445	8·9046759	9·6303058	3498	10·3696942	9·7834715	10·0363504	539	9·9636496	53
	10·4057487	8·9052934	9·6306556	3496	10·3693444	9·7832801	10·0364043	540	9·9635957	52
	10·4054531	8·9059104	9·6310052	3493	10·3689948	9·7830888	10·0364583	540	9·9635417	51
	10·4051578	8·9065270	9·6313545	3492	10·3686455	9·7828973	10·0365123	541	9·9634877	50
	10·4048627	8·9071431	9·6317037	3490	10·3682963	9·7827058	10·0365664	541	9·9634336	49
	10·4045678	8·9077588	9·6320527	3488	10·3679473	9·7825143	10·0366205	542	9·9633795	48
	10·4042732	8·9083740	9·6324015	3486	10·3675985	9·7823226	10·0366747	542	9·9633253	47
	10·4039788	8·9089887	9·6327501	3484	10·3672499	9·7821309	10·0367289	543	9·9632711	46
	10·4036846	8·9096030	9·6330985	3483	10·3669015	9·7819392	10·0367832	543	9·9632168	45
	10·4033907	8·9102169	9·6334468	3480	10·3665532	9·7817474	10·0368375	543	9·9631625	44
	10·4030970	8·9108303	9·6337948	3478	10·3662052	9·7815555	10·0368918	544	9·9631082	43
	10·4028035	8·9114432	9·6341426	3477	10·3658574	9·7813636	10·0369462	544	9·9630538	42
	10·4025103	8·9120557	9·6344903	3475	10·3655097	9·7811716	10·0370006	545	9·9629994	41
	10·4022173	8·9126678	9·6348378	3472	10·3651622	9·7809796	10·0370551	545	9·9629449	40
	10·4019246	8·9132794	9·6351850	3471	10·3648150	9·7807875	10·0371096	546	9·9628904	39
	10·4016321	8·9138905	9·6355321	3469	10·3644679	9·7805953	10·0371642	546	9·9628358	38
	10·4013398	8·9145012	9·6358790	3467	10·3641210	9·7804031	10·0372188	546	9·9627812	37
	10·4010477	8·9151115	9·6362257	3465	10·3637743	9·7802108	10·0372734	547	9·9627266	36
	10·4007559	8·9157213	9·6365722	3463	10·3634278	9·7800184	10·0373281	547	9·9626719	35
	10·4004643	8·9163306	9·6369185	3461	10·3630815	9·7798260	10·0373828	548	9·9626172	34
	10·4001730	8·9169396	9·6372646	3460	10·3627354	9·7796335	10·0374376	548	9·9625624	33
	10·3998819	8·9175480	9·6376106	3457	10·3623894	9·7794410	10·0374924	549	9·9625076	32
	10·3995910	8·9181561	9·6379563	3456	10·3620437	9·7792484	10·0375473	549	9·9624527	31
	10·3993003	8·9187636	9·6383019	3454	10·3616981	9·7790558	10·0376022	550	9·9623978	30
	10·3990099	8·9193708	9·6386473	3452	10·3613527	9·7788630	10·0376572	550	9·9623428	29
	10·3987197	8·9199775	9·6389925	3450	10·3610075	9·7786703	10·0377122	550	9·9622878	28
	10·3984297	8·9205837	9·6393375	3448	10·3606625	9·7784774	10·0377672	551	9·9622328	27
	10·3981400	8·9211895	9·6396823	3446	10·3603177	9·7782845	10·0378223	551	9·9621777	26
	10·3978505	8·9217949	9·6400269	3445	10·3599731	9·7780916	10·0378774	552	9·9621226	25
	10·3975612	8·9223999	9·6403714	3442	10·3596286	9·7778985	10·0379326	552	9·9620674	24
	10·3972722	8·9230043	9·6407156	3441	10·3592844	9·7777055	10·0379878	553	9·9620122	23
	10·3969833	8·9236084	9·6410597	3439	10·3589403	9·7775123	10·0380431	553	9·9619569	22
	10·3966948	8·9242120	9·6414036	3437	10·3585964	9·7773191	10·0380984	553	9·9619016	21
	10·3964064	8·9248152	9·6417473	3435	10·3582527	9·7771258	10·0381537	554	9·9618463	20
	10·3961183	8·9254179	9·6420908	3434	10·3579092	9·7769325	10·0382091	554	9·9617909	19
	10·3958304	8·9260202	9·6424342	3431	10·3575658	9·7767391	10·0382645	555	9·9617355	18
	10·3955427	8·9266221	9·6427773	3430	10·3572227	9·7765457	10·0383200	555	9·9616800	17
	10·3952552	8·9272235	9·6431203	3428	10·3568797	9·7763521	10·0383755	556	9·9616245	16
	10·3949680	8·9278245	9·6434631	3426	10·3565369	9·7761586	10·0384311	556	9·9615689	15
	10·3946810	8·9284251	9·6438057	3424	10·3561943	9·7759649	10·0384867	557	9·9615133	14
	10·3943943	8·9290252	9·6441481	3422	10·3558519	9·7757712	10·0385424	556	9·9614576	13
	10·3941077	8·9296249	9·6444903	3421	10·3555097	9·7755775	10·0385980	558	9·9614020	12
	10·3938214	8·9302242	9·6448324	3419	10·3551676	9·7753836	10·0386538	558	9·9613462	11
	10·3935353	8·9308231	9·6451743	3417	10·3548257	9·7751898	10·0387096	558	9·9612904	10
	10·3932494	8·9314215	9·6455160	3415	10·3544840	9·7749958	10·0387654	559	9·9612346	9
	10·3929638	8·9320194	9·6458575	3413	10·3541425	9·7748018	10·0388213	559	9·9611787	8
	10·3926784	8·9326170	9·6461988	3412	10·3538012	9·7746077	10·0388772	560	9·9611228	7
	10·3923932	8·9332141	9·6465400	3410	10·3534600	9·7744136	10·0389332	560	9·9610668	6
	10·3921082	8·9338108	9·6468810	3407	10·3531190	9·7742194	10·0389892	560	9·9610108	5
	10·3918235	8·9344070	9·6472217	3407	10·3527783	9·7740252	10·0390452	561	9·9609548	4
	10·3915389	8·9350029	9·6475624	3404	10·3524376	9·7738308	10·0391013	561	9·9608987	3
	10·3912546	8·9355983	9·6479028	3403	10·3520972	9·7736365	10·0391574	562	9·9608426	2
	10·3909706	8·9361933	9·6482431	3400	10·3517569	9·7734420	10·0392136	562	9·9607864	1
	10·3906867	8·9367878	9·6485831		10·3514169	9·7732475	10·0392698		9·9607302	0
Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	'

Deg. 66.

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	4067366	2658	5932634	2·4585933	4452287	2·2460368	1·0946365	0864545	1184	[illegible]	
1	4070024	2657	5929976	2·4569822	4455773	2·2442796	1·0947781	0865729	1184	[illegible]	
2	4072681	2656	5927319	2·4553853	4459260	2·2425247	1·0949201	0866913	1185	[illegible]	
3	4075337	2656	5924663	2·4537818	4462747	2·2407721	1·0950622	0868098	1186	[illegible]	
4	4077993	2656	5922007	2·4521865	4466236	2·2390218	1·0952044	0869284	1187	[illegible]	
5	4080649	2656	5919351	2·4505905	4469726	2·2372738	1·0953467	0870471	1187	[illegible]	
6	4083305	2655	5916695	2·4489968	4473216	2·2355280	1·0954892	0871658	1188	[illegible]	
7	4085960	2655	5914040	2·4474054	4476708	2·2337845	1·0956318	0872846	1189	[illegible]	
8	4088615	2654	5911385	2·4458163	4480200	2·2320433	1·0957746	0874035	1190	[illegible]	
9	4091269	2654	5908731	2·4442294	4483693	2·2303043	1·0959174	0875225	1191	[illegible]	
10	4093923	2654	5906077	2·4426448	4487187	2·2285676	1·0960604	0876416	1191	[illegible]	
11	4096577	2653	5903423	2·4410624	4490682	2·2268331	1·0962036	0877607	1192	[illegible]	
12	4099230	2653	5900770	2·4394823	4494178	2·2251009	1·0963468	0878799	1193	[illegible]	
13	4101883	2653	5898117	2·4379045	4497675	2·2233709	1·0964902	0879992	1195	[illegible]	
14	4104536	2653	5895464	2·4363289	4501173	2·2216432	1·0966337	0881187	1195	[illegible]	
15	4107189	2652	5892811	2·4347555	4504672	2·2199177	1·0967774	0882382	1195	[illegible]	
16	4109841	2651	5890159	2·4331844	4508171	2·2181944	1·0969212	0883575	1196	[illegible]	
17	4112492	2652	5887508	2·4316155	4511672	2·2164733	1·0970651	0884771	1196	[illegible]	
18	4115144	2651	5884856	2·4300489	4515173	2·2147545	1·0972091	0885967	1198	[illegible]	
19	4117795	2650	5882205	2·4284844	4518676	2·2130379	1·0973533	0887165	1198	[illegible]	
20	4120445	2651	5879555	2·4269222	4522179	2·2113234	1·0974976	0888363	1199	[illegible]	
21	4123096	2649	5876904	2·4253622	4525683	2·2096112	1·0976420	0889562	1200	[illegible]	
22	4125745	2650	5874255	2·4238044	4529188	2·2079012	1·0977866	0890762	1200	[illegible]	
23	4128395	2649	5871605	2·4222488	4532694	2·2061934	1·0979313	0891962	1201	[illegible]	
24	4131044	2649	5868956	2·4206954	4536201	2·2044878	1·0980761	0893163	1202	[illegible]	
25	4133693	2649	5866307	2·4191442	4539709	2·2027843	1·0982211	0894335	1201	[illegible]	
26	4136342	2648	5863658	2·4175952	4543218	2·2010831	1·0983662	0895568	1203	[illegible]	
27	4138990	2648	5861010	2·4160484	4546728	2·1993840	1·0985114	0896772	1204	[illegible]	
28	4141638	2647	5858362	2·4145038	4550238	2·1976871	1·0986568	0897976	[illegible]	[illegible]	
29	4144285	2647	5855715	2·4129613	4553750	2·1959923	1·0988023	0899181	1206	[illegible]	
30	4146932	2647	5853068	2·4114210	4557263	2·1942097	1·0989479	0900387	1207	[illegible]	
31	4149579	2647	5850421	2·4098829	4560776	2·1926093	1·0990936	0901594	1207	[illegible]	
32	4152226	2646	5847774	2·4083469	4564290	2·1909210	1·0992395	0902801	1209	[illegible]	
33	4154872	2645	5845128	2·4068132	4567806	2·1892349	1·0993855	0904010	1209	[illegible]	
34	4157517	2646	5842483	2·4052815	4571322	2·1875510	1·0995317	0905219	1209	[illegible]	
35	4160163	2645	5839837	2·4037520	4574839	2·1858691	1·0996779	0906428	1211	[illegible]	
36	4162808	2645	5837192	2·4022247	4578357	2·1841894	1·0998243	0907639	1211	[illegible]	
37	4165453	2644	5834547	2·4006995	4581877	2·1825119	1·0999709	0908850	1212	[illegible]	
38	4168097	2644	5831903	2·3991764	4585397	2·1808364	1·1001175	0910062	1213	[illegible]	
39	4170741	2644	5829259	2·3976555	4588918	2·1791631	1·1002644	0911275	1214	[illegible]	
40	4173385	2643	5826615	2·3961367	4592439	2·1774920	1·1004113	0912489	1214	[illegible]	
41	4176028	2643	5823972	2·3946201	4595982	2·1758229	1·1005584	0913703	1215	[illegible]	
42	4178671	2642	5821329	2·3931055	4599486	2·1741559	1·1007056	0914918	1216	[illegible]	
43	4181313	2643	5818687	2·3915931	4603011	2·1724911	1·1008520	0916134	1217	[illegible]	
44	4183956	2641	5816044	2·3900828	4606537	2·1708283	1·1010004	0917351	1217	[illegible]	
45	4186597	2642	5813403	2·3885746	4610063	2·1691677	1·1011480	0918568	1218	[illegible]	
46	4189239	2641	5810761	2·3870685	4613591	2·1675091	1·1012957	0919786	1219	[illegible]	
47	4191880	2641	5808120	2·3855645	4617119	2·1658527	1·1014436	0921005	1220	[illegible]	
48	4194521	2640	5805479	2·3840625	4620649	2·1641983	1·1015916	0922225	1221	[illegible]	
49	4197161	2640	5802839	2·3825627	4624179	2·1625460	1·1017397	0923446	1221	[illegible]	
50	4199801	2640	5800199	2·3810650	4627710	2·1608958	1·1018879	0924667	1222	[illegible]	
51	4202441	2639	5797559	2·3795694	4631243	2·1592476	1·1020363	0925889	1223	[illegible]	
52	4205080	2639	5794920	2·3780758	4634776	2·1576015	1·1021849	0927112	1223	[illegible]	
53	4207719	2649	5792281	2·3765843	4638310	2·1559575	1·1023335	0928335	1224	[illegible]	
54	4210358	2638	5789642	2·3750949	4641845	2·1543156	1·1024823	0929560	1225	[illegible]	
55	4212996	2638	5787004	2·3736075	4645382	2·1526757	1·1026313	0930785	1226	[illegible]	
56	4215634	2638	5784366	2·3721222	4648919	2·1510378	1·1027803	0932011	1227	[illegible]	
57	4218272	2637	5781728	2·3706390	4652457	2·1494021	1·1029295	0933238	1227	[illegible]	
58	4220909	2637	5779091	2·3691578	4655996	2·1477683	1·1030789	0934465	1228	[illegible]	
59	4223546	2637	5776454	2·3676787	4659536	2·1461366	1·1032283	0935693	1229	[illegible]	
60	4226183		5773817	2·3662016	4663077	2·1445069	1·1033779	0936922		[illegible]	
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

'	Sine	Dif	Cosec.	Versed	Tang	Dif	Cotang	Covers.	Secant	D.	Cosine
0	9·6093[illegible]		10·3906867	8·[illegible]	[illegible]		10·3[illegible]	9·7732[illegible]	10·039269[illegible]		9·9607402
1	9·609[illegible]		10·3914[illegible]	[illegible]	[illegible]	3395	10·3[illegible]	9·77[illegible]	10·0[illegible]	563	9·9606739
2	[illegible]	2834	10·[illegible]90114[illegible]	[illegible]	[illegible]		10·[illegible]	9·772[illegible]	[illegible]	564	9·9606176
3	9·6[illegible]		[illegible]	[illegible]	9·6496[illegible]	3394	10·3[illegible]0577	9·7726[illegible]	10·0394[illegible]	564	9·9605612
4	9·6104[illegible]		10·[illegible]	[illegible]	9·6499417	3392	10·3500583	9·7724[illegible]	10·0394952	564	9·9605048
5	9·61077[illegible]	2826	10·3892707	8·9397541	9·6502[illegible]	3390	10·3497101	9·7722741	10·0395516	564	9·9604484
6	9·6110118	2823	10·3889882	8·9403462	9·6506199	3388	10·3493801	9·7720792	10·0396081	565	9·9603919
7	9·6112941	2821	10·3887059	8·9409374	9·65[illegible]	3387	10·3490413	9·7718843	10·0396646	566	9·9603354
8	9·6115762	2818	10·3884238	8·9415290	9·651297[illegible]	3385	10·3487046	9·7716893	10·0397212	566	9·9602788
9	9·6118580	2817	10·3881420	8·942119[illegible]	9·6516459	3381	10·3483641	9·7714942	10·039777[illegible]	566	9·96022[illegible]
10	9·6121397	2814	10·387[illegible]	8·9427103	9·6519712	3381	10·3480258	9·7712991	10·0398345	567	9·9601655
11	9·6124211	2812	10·3875789	8·9433000	9·6523123	3380	10·3476877	9·7711039	10·0398912	568	9·9601088
12	9·6127023	2810	10·3872977	8·9438897	9·6526501	3378	10·3473497	9·7709087	10·0399480	568	9·9600520
13	9·6129833	2808	10·3870167	8·9444785	9·6529881	3376	10·3470119	9·7707134	10·0400048	568	9·9599952
14	9·6132641	2805	10·3867359	8·9450672	9·6533257	3374	10·3466743	9·7705180	10·0400616	569	9·9599384
15	9·6135446	2804	10·3861554	8·9456[illegible]54	9·6536631	3371	10·346[illegible]	9·7703225	10·040118[illegible]	569	9·9598815
16	9·6138250	2801	10·3861750	8·9462431	9·654000[illegible]	3371	10·3459996	9·7701271	10·04017[illegible]	570	9·9598246
17	9·6141051	2799	10·3858949	8·9468307	9·6543375	3369	10·3456625	9·7699315	10·0402324	570	9·9597676
18	9·6143850	2797	10·3856150	8·9474177	9·6546744	3365	10·3453256	9·7697359	10·0402894	571	9·9597106
19	9·6146647	2794	10·3853353	8·9480042	9·6550112	3364	10·3449888	9·7695402	10·0403465	571	9·9596535
20	9·6149441	2793	10·3850559	8·9485904	9·6553477	3363	10·3446523	9·7693444	10·0404036	571	9·9595964
21	9·6152234	2790	10·3847766	8·9491761	9·6556841	3363	10·3443159	9·7691486	10·0404607	572	9·9595393
22	9·6155024	2788	10·3844976	8·9497[illegible]	9·6560204	3360	10·3439796	9·7689528	10·0405179	573	9·9594821
23	9·6157812	2787	10·3842188	8·9503463	9·6563564	3360	10·3436436	9·7687568	10·0405752	573	9·9594248
24	9·6160599	2783	10·3839401	8·950[illegible]109	9·6566924	3357	10·3433077	9·7685608	10·0406325	573	9·9593675
25	9·6163382	2782	10·3836618	8·951[illegible]	9·6570280	3356	10·3429720	9·7683648	10·0406898	574	9·9593102
26	9·6166164	2780	10·3833836	8·952[illegible]87	9·6573636	3353	10·3426364	9·7681687	10·0407472	574	9·9592528
27	9·6168944	2777	10·3831056	8·952[illegible]	9·6576989	3352	10·3423011	9·7679725	10·0408046	574	9·9591954
28	9·6171721	2777	10·3828279	8·953[illegible]	9·6580341	3351	10·3419659	9·7677762	10·0408620	575	9·9591380
29	9·617449[illegible]	2774	10·382550[illegible]	8·953[illegible]	9·658369[illegible]	3349	10·341610[illegible]	9·7675799	10·0409195	576	9·9590805
30	9·6177270	2771	10·3822730	8·9544294	9·6587041	3346	10·3412959	9·767[illegible]	10·0409771	576	9·9590229
31	9·6180041	2768	10·3819959	8·955[illegible]110	9·659[illegible]	3346	10·3409613	9·7671871	10·0410347	576	9·9589653
32	9·6182809	2767	10·3817191	8·9555922	9·6593733	3344	10·3406267	9·7669906	10·0410923	577	9·9589077
33	9·618557[illegible]	2765	10·3814424	8·956[illegible]	9·6597077	3342	10·340[illegible]923	9·7667940	10·0411500	577	9·9588500
34	9·6188341	2762	10·3811659	8·956[illegible]	9·66004[illegible]	3340	10·33995[illegible]	9·766[illegible]	10·0412077	578	9·9587923
35	9·6191103	2761	10·3808897	8·9573335	9·6603758	3339	10·3396242	9·7664007	10·0412655	578	9·9587345
36	9·6193864	2758	10·3806136	8·9579131	9·6607097	3337	10·3392903	9·7662040	10·0413233	579	9·9586767
37	9·6196622	2756	10·3803378	8·9584924	9·6610434	3335	10·3389566	9·7660072	10·0413812	579	9·9586188
38	9·6199378	2754	10·3800622	8·9590711	9·6613769	3334	10·3386231	9·7658103	10·0414391	579	9·9585609
39	9·6202132	2752	10·3797868	8·959649[illegible]	9·6617103	3331	10·3382897	9·7656134	10·0414970	580	9·958503[illegible]
40	9·6204884	2750	10·3795116	8·9602275	9·66204[illegible]4	3331	10·33795[illegible]6	9·7654161	10·0415550	580	9·9584450
41	9·6207634	2748	10·3792366	8·9608051	9·662[illegible]765	3328	10·3376235	9·7652194	10·0416131	581	9·9583869
42	9·6210382	2745	10·3789618	8·9613823	9·6627093	3327	10·3372907	9·7650222	10·0416712	581	9·9583288
43	9·6213127	2744	10·3786873	8·9619591	9·6630420	3325	10·3369580	9·7648250	10·041729[illegible]	582	9·9582707
44	9·6215871	2741	10·3784129	8·962[illegible]	9·6633745	3324	10·33662[illegible]	9·7646277	10·04178[illegible]	582	9·9582125
45	9·6218612	2739	10·3781388	8·9631114	9·6637069	3322	10·3362931	9·7644304	10·0418457	582	9·958154[illegible]
46	9·6221351	2737	10·3778649	8·9636870	9·6640391	3320	10·3359609	9·7642330	10·04190[illegible]9	583	9·9580961
47	9·6224088	2736	10·3775912	8·9642622	9·6643711	3319	10·3356289	9·7640356	10·0419[illegible]2	583	9·9580378
48	9·6226824	2733	10·3773176	8·9648370	9·6647030	3316	10·3352970	9·7638381	10·0420206	584	9·9579794
49	9·6229557	2730	10·3770443	8·9654114	9·665[illegible]	3316	10·3349654	9·7636405	10·0420790	584	9·957921[illegible]
50	9·6232287	2729	10·3767713	8·9659854	9·665[illegible]	3314	10·3346338	9·763442[illegible]	10·0421374	585	9·9578626
51	9·6235016	2727	10·3764984	8·96[illegible]	9·66[illegible]	3313	10·3343025	9·76[illegible]452	10·0421959	585	9·9578041
52	9·6237743	2725	10·3762257	8·96713[illegible]	[illegible]	3310	10·3339712	9·76[illegible]0474	10·0422544	586	9·957745[illegible]
53	9·6240468	2722	10·3759532	8·9677[illegible]	9·6663594	3308	10·3336402	9·7628496	10·0423130	586	9·9576870
54	9·6243190	2721	10·3756810	8·9682773	9·6666907	3307	10·333309[illegible]	9·7626517	10·0423716	587	9·9576284
55	9·6245911	2718	10·3754089	8·9688494	9·6670214	3305	10·3329786	9·7624537	10·042430[illegible]	587	9·9575697
56	9·6248629	2717	10·3751371	8·9694210	9·6673519	3304	10·3326481	9·7622557	10·0424890	588	9·9575110
57	9·625134[illegible]	2714	10·3748654	8·96999[illegible]	9·6676823	3303	10·3323177	9·7620577	10·0425478	588	9·9574522
58	9·6254060	2711	10·3745940	8·9705630	9·6680126	3300	10·3319874	9·7618592	10·0426066	588	9·9573934
59	9·62[illegible]772	2711	10·3743228	8·9711331	9·6683426	3299	10·3316574	9·7616613	10·0426654	589	9·9573346
60	9·62[illegible]483		10·3740517	8·9717033	9·6686725		10·3313275	9·7614630	10·0427243		9·9572757
'	Cosine	Dif	Secant	Covers.	Cotang.	Dif.	Tang.	Versed	Cosec.	D.	Sine

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang	Secant	Vers	Dif	Cosine	
0	[illegible]	[illegible]	[illegible]	2·3662016	[illegible]	[illegible]	[illegible]	[illegible]	1230	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2·1427·93	[illegible]	[illegible]	1230	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	4670161	[illegible]	1·1036775	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	4236725	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1232	[illegible]	[illegible]
5	[illegible]	2634	5760640	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1234	[illegible]	[illegible]
7	[illegible]	2634	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1235	[illegible]	[illegible]
8	[illegible]	2633	[illegible]	[illegible]	4691439	2·1315423	[illegible]	[illegible]	1236	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2·1299308	1·1047303	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	5747472	[illegible]	[illegible]	2·1283213	[illegible]	[illegible]	1237	[illegible]	[illegible]
11	4255161	2632	[illegible]	[illegible]	4702090	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	2632	5742207	2·3486347	[illegible]	2·1251082	[illegible]	[illegible]	1239	[illegible]	[illegible]
13	4260425	2631	[illegible]	[illegible]	4709196	2·1235046	[illegible]	[illegible]	1240	[illegible]	[illegible]
14	[illegible]	2631	[illegible]	2·3457349	4712751	2·1219030	1·1054864	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	5734313	2·3442881	4716306	[illegible]	1·1056380	[illegible]	1241	[illegible]	[illegible]
16	[illegible]	2631	5731682	2·3428432	4719863	[illegible]	1·1057898	[illegible]	1242	[illegible]	[illegible]
17	[illegible]	2630	5729051	[illegible]	4723420	2·1171101	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	2629	[illegible]	2·3399593	4726978	2·1155164	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	2630	[illegible]	2·3385203	[illegible]	2·1139246	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	4734098	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	4281467	2628	[illegible]	[illegible]	[illegible]	2·1107470	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	5715905	[illegible]	[illegible]	2·1091611	[illegible]	[illegible]	1247	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	4744785	[illegible]	1·1068558	0965400	1247	[illegible]	37
24	[illegible]	2628	[illegible]	[illegible]	4748349	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	2627	5708021	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	2627	[illegible]	2·3285023	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	2626	[illegible]	[illegible]	[illegible]	2·1012607	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	2626	5700141	[illegible]	[illegible]	[illegible]	1·1076214	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	2626	[illegible]	[illegible]	[illegible]	[illegible]	1·1077749	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	2625	[illegible]	2·3228205	[illegible]	[illegible]	1·1079285	0974147	[illegible]	[illegible]	[illegible]
31	4307736	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1·1082363	[illegible]	[illegible]	[illegible]	[illegible]
33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34	[illegible]	2624	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35	[illegible]	[illegible]	[illegible]	[illegible]	4787621	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36	[illegible]	2624	[illegible]	[illegible]	4791197	2·0871610	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
37	[illegible]	2622	5676519	[illegible]	4794774	[illegible]	1·1090679	0982932	[illegible]	[illegible]	[illegible]
38	4326103	2623	[illegible]	[illegible]	[illegible]	2·0840487	1·1091627	[illegible]	[illegible]	[illegible]	[illegible]
39	[illegible]	2622	[illegible]	2·3101486	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	[illegible]	2622	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1261	[illegible]	[illegible]
41	4333970	2621	[illegible]	[illegible]	[illegible]	[illegible]	1·1096277	[illegible]	1261	[illegible]	[illegible]
42	[illegible]	2621	5663409	2·3059588	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43	[illegible]	2620	[illegible]	2·3045660	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1264	[illegible]	[illegible]
45	4344453	2619	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1264	[illegible]	[illegible]
46	[illegible]	2620	[illegible]	[illegible]	4827014	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
48	[illegible]	[illegible]	[illegible]	2·2976299	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49	[illegible]	2618	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10
51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
53	[illegible]	2617	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
54	[illegible]	2616	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1271	[illegible]	[illegible]
55	[illegible]	2617	5629366	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
56	[illegible]	[illegible]	5626749	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
57	[illegible]	[illegible]	5624134	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
59	[illegible]	2614	[illegible]	2·282533	[illegible]	[illegible]	1·1124442	[illegible]	[illegible]	[illegible]	[illegible]
60	4384711	[illegible]	5616289	2·2811720	4877326	[illegible]	1·1126018	[illegible]	[illegible]	[illegible]	[illegible]
	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·6259483	2708	10·3740517	8·9717075	9·6686725	3298	10·3313275	9·7614630	10·0427243	599	9·9572757	60
1	9·6262191	2706	10·3737809	8·9722731	9·6690023	3296	10·3309977	9·7612647	10·0427832	590	9·9572168	59
2	9·6264897	2704	10·3735103	8·9728424	9·6693319	3294	10·3306681	9·7610663	10·0428422	590	9·9571578	58
3	9·6267601	2702	10·3732399	8·9734111	9·6696613	3293	10·3303387	9·7608679	10·0429012	591	9·9570988	57
4	9·6270303	2700	10·3729697	8·9739797	9·6699906	3291	10·3300094	9·7606694	10·0429603	591	9·9570397	56
5	9·6273003	2698	10·3726997	8·9745478	9·6703197	3289	10·3296803	9·7604707	10·0430194	591	9·9569806	55
6	9·6275701	2696	10·3724299	8·9751155	9·6706486	3288	10·3293514	9·7602721	10·0430785	592	9·9569215	54
7	9·6278397	2693	10·3721603	8·9756828	9·6709774	3286	10·3290226	9·7600734	10·0431377	593	9·9568623	53
8	9·6281090	2692	10·3718910	8·9762497	9·6713060	3285	10·3286940	9·7598746	10·0431970	593	9·9568030	52
9	9·6283782	2690	10·3716218	8·9768161	9·6716345	3283	10·3283655	9·7596758	10·0432563	593	9·9567437	51
10	9·6286472	2688	10·3713528	8·9773824	9·6719628	3282	10·3280372	9·7594769	10·0433156	594	9·9566844	50
11	9·6289160	2685	10·3710840	8·9779482	9·6722910	3280	10·3277090	9·7592779	10·0433750	594	9·9566250	49
12	9·6291845	2684	10·3708155	8·9785135	9·6726190	3278	10·3273810	9·7590789	10·0434344	595	9·9565656	48
13	9·6294529	2682	10·3705471	8·9790785	9·6729468	3277	10·3270532	9·7588798	10·0434939	595	9·9565061	47
14	9·6297211	2679	10·3702789	8·9796431	9·6732745	3275	10·3267255	9·7586806	10·0435534	596	9·9564466	46
15	9·6299890	2678	10·3700110	8·9802073	9·6736020	3274	10·3263980	9·7584814	10·0436130	596	9·9563870	45
16	9·6302568	2675	10·3697432	8·9807711	9·6739294	3272	10·3260706	9·7582821	10·0436726	596	9·9563274	44
17	9·6305243	2674	10·3694757	8·9813346	9·6742566	3270	10·3257434	9·7580827	10·0437322	597	9·9562678	43
18	9·6307917	2672	10·3692083	8·9818976	9·6745836	3269	10·3254164	9·7578833	10·0437919	598	9·9562081	42
19	9·6310589	2669	10·3689411	8·9824603	9·6749105	3267	10·3250895	9·7576838	10·0438517	597	9·9561483	41
20	9·6313258	2668	10·3686742	8·9830226	9·6752372	3266	10·3247628	9·7574843	10·0439114	599	9·9560886	40
21	9·6315926	2665	10·3684074	8·9835845	9·6755638	3265	10·3244362	9·7572847	10·0439713	598	9·9560287	39
22	9·6318591	2664	10·3681409	8·9841460	9·6758903	3264	10·3241097	9·7570850	10·0440311	600	9·9559689	38
23	9·6321255	2661	10·3678745	8·9847072	9·6762165	3261	10·3237835	9·7568852	10·0440911	599	9·9559089	37
24	9·6323916	2660	10·3676084	8·9852679	9·6765426	3260	10·3234574	9·7566854	10·0441510	600	9·9558490	36
25	9·6326576	2657	10·3673424	8·9858283	9·6768686	3258	10·3231314	9·7564856	10·0442110	601	9·9557890	35
26	9·6329233	2656	10·3670767	8·9863883	9·6771944	3257	10·3228056	9·7562856	10·0442711	601	9·9557289	34
27	9·6331889	2653	10·3668111	8·9869480	9·6775201	3256	10·3224799	9·7560856	10·0443312	601	9·9556688	33
28	9·6334542	2652	10·3665458	8·9875072	9·6778456	3253	10·3221544	9·7558856	10·0443913	602	9·9556087	32
29	9·6337194	2650	10·3662806	8·9880661	9·6781709	3252	10·3218291	9·7556855	10·0444515	603	9·9555485	31
30	9·6339844	2647	10·3660156	8·9886246	9·6784961	3250	10·3215039	9·7554853	10·0445118	602	9·9554882	30
31	9·6342491	2646	10·3657509	8·9891827	9·6788211	3249	10·3211789	9·7552850	10·0445720	604	9·9554280	29
32	9·6345137	2643	10·3654863	8·9897404	9·6791460	3248	10·3208540	9·7550847	10·0446324	603	9·9553676	28
33	9·6347780	2642	10·3652220	8·9902978	9·6794708	3245	10·3205292	9·7548843	10·0446927	604	9·9553073	27
34	9·6350422	2640	10·3649578	8·9908548	9·6797953	3245	10·3202047	9·7546839	10·0447531	605	9·9552469	26
35	9·6353062	2637	10·3646938	8·9914114	9·6801198	3242	10·3198802	9·7544833	10·0448136	605	9·9551864	25
36	9·6355699	2636	10·3644301	8·9919676	9·6804440	3242	10·3195560	9·7542828	10·0448741	606	9·9551259	24
37	9·6358335	2634	10·3641665	8·9925235	9·6807682	3239	10·3192318	9·7540821	10·0449347	606	9·9550653	23
38	9·6360969	2632	10·3639031	8·9930790	9·6810921	3239	10·3189079	9·7538814	10·0449953	606	9·9550047	22
39	9·6363601	2630	10·3636399	8·9936341	9·6814160	3236	10·3185840	9·7536806	10·0450559	607	9·9549441	21
40	9·6366231	2628	10·3633769	8·9941888	9·6817396	3236	10·3182604	9·7534798	10·0451166	607	9·9548834	20
41	9·6368859	2625	10·3631141	8·9947432	9·6820632	3233	10·3179368	9·7532789	10·0451773	608	9·9548227	19
42	9·6371484	2624	10·3628516	8·9952972	9·6823865	3233	10·3176135	9·7530779	10·0452381	608	9·9547619	18
43	9·6374108	2623	10·3625892	8·9958508	9·6827098	3230	10·3172902	9·7528769	10·0452989	609	9·9547011	17
44	9·6376731	2620	10·3623269	8·9964041	9·6830328	3229	10·3169672	9·7526758	10·0453598	609	9·9546402	16
45	9·6379351	2618	10·3620649	8·9969569	9·6833557	3228	10·3166443	9·7524746	10·0454207	609	9·9545793	15
46	9·6381969	2616	10·3618031	8·9975095	9·6836785	3226	10·3163215	9·7522734	10·0454816	610	9·9545184	14
47	9·6384585	2614	10·3615415	8·9980616	9·6840011	3225	10·3159989	9·7520721	10·0455426	611	9·9544574	13
48	9·6387199	2613	10·3612801	8·9986134	9·6843236	3223	10·3156764	9·7518708	10·0456037	611	9·9543963	12
49	9·6389812	2610	10·3610188	8·9991648	9·6846459	3222	10·3153541	9·7516694	10·0456648	611	9·9543352	11
50	9·6392422	2608	10·3607578	8·9997158	9·6849681	3220	10·3150319	9·7514679	10·0457259	612	9·9542741	10
51	9·6395030	2607	10·3604970	9·0002665	9·6852901	3219	10·3147099	9·7512663	10·0457871	612	9·9542129	9
52	9·6397637	2604	10·3602363	9·0008168	9·6856120	3218	10·3143880	9·7510647	10·0458483	613	9·9541517	8
53	9·6400241	2603	10·3599759	9·0013667	9·6859338	3215	10·3140662	9·7508630	10·0459096	613	9·9540904	7
54	9·6402844	2601	10·3597156	9·0019163	9·6862553	3215	10·3137447	9·7506613	10·0459709	614	9·9540291	6
55	9·6405445	2599	10·3594555	9·0024655	9·6865768	3213	10·3134232	9·7504595	10·0460323	614	9·9539677	5
56	9·6408044	2596	10·3591956	9·0030144	9·6868981	3211	10·3131019	9·7502576	10·0460937	615	9·9539063	4
57	9·6410640	2595	10·3589360	9·0035628	9·6872192	3210	10·3127808	9·7500556	10·0461552	615	9·9538448	3
58	9·6413235	2593	10·3586765	9·0041109	9·6875402	3209	10·3124598	9·7498536	10·0462167	615	9·9537833	2
59	9·6415828	2592	10·3584172	9·0046587	9·6878611	3207	10·3121389	9·7496516	10·0462782	616	9·9537218	1
60	9·6418420		10·3581580	9·0052061	9·6881818		10·3118182	9·7494494	10·0463398		9·9536602	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	Dif.	Cosine	'
0	4383711	2615	561[illegible]	2·2811720	4877326	2·0503038	1·1126019	1012060	[illegible]	[illegible]	60
1	4386326	2614	5613674	2·279[illegible]	48[illegible]927	2·0487910	1·1127599	1013345	[illegible]	[illegible]	59
2	4388940	2613	5611060	2·2784[illegible]	4884[illegible]	2·0472400	1·1129179	1014613	[illegible]	[illegible]	58
3	4391553	2613	5608447	2·2770947	488[illegible]	2·0457708	1·1[illegible]0761	1015888	[illegible]	[illegible]	57
4	4394166	2613	5605834	2·27[illegible]	4891737	2·0442634	1·113[illegible]	1017166	[illegible]	[illegible]	56
5	4396779	2613	5603221	2·274[illegible]921	4895343	2·0427578	1·1133929	1018445	[illegible]	[illegible]	55
6	4399392	2612	5600608	2·2730411	4898949	2·0412544	1·1135516	1019724	[illegible]	[illegible]	54
7	4402004	2611	5597996	2·2716927	4902557	2·0397519	1·1137103	1021004	1281	[illegible]	53
8	4404615	2612	559[illegible]385	2·2703457	4906166	2·0382517	1·113869[illegible]	1022285	[illegible]	[illegible]	52
9	4407227	2611	559[illegible]773	2·2690005	4909775	2·0367532	1·114028[illegible]	1023567	[illegible]	[illegible]	51
10	4409838	2610	5590162	2·2676571	4913386	2·0352565	1·1141874	1024849	[illegible]	[illegible]	50
11	4412448	2611	5587552	2·2663155	4916997	2·0337615	1·1143467	1026132	[illegible]	[illegible]	49
12	4415059	2609	5584941	2·2649756	4920610	2·0322683	1·114506[illegible]	1027416	1285	[illegible]	48
13	4417668	2610	5582332	2·2636376	4924224	2·0307769	1·1146658	1028701	[illegible]	[illegible]	47
14	4420278	2609	5579722	2·2623012	4927848	2·0292873	1·1148255	1029986	[illegible]	[illegible]	46
15	4422887	2609	5577113	2·2609667	4931454	2·0277994	1·1149854	1031274	[illegible]	[illegible]	45
16	4425496	2608	5574504	2·2596339	4935071	2·0263133	1·1151454	1032560	[illegible]	[illegible]	44
17	4428104	2608	5571896	2·2583029	4938689	2·0248289	1·1153056	1033847	1289	[illegible]	43
18	4430712	2607	5569288	2·2569736	4942308	2·0233462	1·1154659	1035136	[illegible]	[illegible]	42
19	4433319	2608	5566681	2·2556461	4945928	2·0218654	1·115626[illegible]	1036425	1290	[illegible]	41
20	4435927	2607	5564073	2·2[illegible]204	4949549	2·0203862	1·1157869	1037715	1291	[illegible]	40
21	4438534	2606	5561466	2·252996[illegible]	4953171	2·0189088	1·1159476	1039006	1291	[illegible]	39
22	4441140	2606	5558860	2·2516741	4956794	2·0174[illegible]	1·1161084	1040297	1292	[illegible]	38
23	4443746	[illegible]	555[illegible]254	2·250[illegible]	4960418	2·01[illegible]959	1·1162694	1041[illegible]89	129[illegible]	[illegible]	37
24	444[illegible]352	2605	5553648	2·2490348	4964043	2·0144869	1·1164304	104[illegible]	129[illegible]	[illegible]	36
25	4448957	2605	5551043	2·2477[illegible]78	4967[illegible]69	2·0130164	1·1165919	1044176	[illegible]	[illegible]	35
26	4451562	2605	55[illegible]438	2·246402[illegible]	4971297	2·0115477	1·11[illegible]33	[illegible]	[illegible]	[illegible]	34
27	4454167	2604	55[illegible]833	2·2450[illegible]	497[illegible]	2·0100806	1·11[illegible]	[illegible]	[illegible]	[illegible]	33
28	4456771	2604	[illegible]43229	2·2437770	4978[illegible]54	2·0086153	1·117[illegible]	[illegible]	1297	[illegible]	32
29	4459375	2603	5540625	2·2424669	4982185	2·0071516	1·117[illegible]	10493[illegible]	1297	[illegible]	31
30	4461978	2603	5538022	2·2[illegible]	498[illegible]816	2·0056897	1·1174004	1050656	[illegible]	[illegible]	30
31	4464581	2603	5535419	2·2[illegible]517	4989449	2·004227[illegible]	1·117562[illegible]	10[illegible]955	[illegible]	[illegible]	29
32	4467184	2602	553[illegible]816	2·23[illegible]	499[illegible]	2·0027710	1·117724[illegible]	10[illegible]254	1300	[illegible]	28
33	4469786	2602	553021[illegible]	2·2372435	[illegible]996717	2·0013142	1·1178[illegible]	1054554	1300	[illegible]	27
34	4472388	2601	5527612	2·235[illegible]419	[illegible]000352	1·9998590	1·1180498	1055854	1302	[illegible]	26
35	4474990	2601	5525010	2·234[illegible]420	[illegible]003989	1·9984056	1·1182124	1057156	1302	[illegible]	25
36	4477[illegible]91	2601	5522409	2·233344[illegible]	5007627	1·9969539	1·118[illegible]75[illegible]	1058458	1302	[illegible]	24
37	4480192	2600	5519808	2·2320474	5011266	1·9955038	1·1185383	1059760	1304	[illegible]	23
38	4482792	2600	5517208	2·2307526	5014906	1·9940554	1·1187014	1061[illegible]64	1304	[illegible]	22
39	4485392	2600	5514608	2·2294595	5018[illegible]47	1·9926087	1·1188647	1062368	1306	[illegible]	21
40	4487992	2599	5512008	2·228168[illegible]	5022189	1·9911637	1·1190281	10[illegible]3674	130[illegible]	[illegible]	20
41	4490591	2599	5509409	2·226878[illegible]	5025832	1·9897204	1·1191916	1064979	1307	[illegible]	19
42	4493190	2599	5506810	2·225590[illegible]	5029476	1·9882787	1·11935[illegible]	1066[illegible]	1308	[illegible]	18
43	449[illegible]789	2598	5504211	2·2243039	5033121	1·9868387	1·119[illegible]91	[illegible]067594	[illegible]	[illegible]	17
44	4498387	2597	5501613	2·2230192	5036768	1·9854[illegible]03	1·1196831	106890[illegible]	1309	[illegible]	16
45	4500984	2598	5499016	2·2217362	5040415	1·98[illegible]9636	1·1198472	[illegible]070211	1309	[illegible]	15
46	450358[illegible]	2597	5496418	2·2204[illegible]48	5044063	1·982[illegible]286	1·120[illegible]11[illegible]	1071520	[illegible]	[illegible]	14
47	4506179	2596	5493821	2·2191752	5047713	1·98109[illegible]	1·12017[illegible]	107[illegible]831	1311	[illegible]	13
48	450877[illegible]	2597	5491225	2·2178971	5051363	1·97966[illegible]	1·120[illegible]463	1074142	1312	[illegible]	12
49	4511472	2595	54[illegible]	2·2166208	[illegible]055015	1·978[illegible]	1·1205[illegible]	1075454	131[illegible]	[illegible]	11
50	4513967	2596	548[illegible]	2·2153460	50[illegible]668	1·9768050	1·1206766	107676[illegible]	1314	[illegible]	10
51	4516563	2595	[illegible]483437	2·2140730	[illegible]062322	1·9754782	1·1208350	107808[illegible]	1314	[illegible]	9
52	4519158	2595	5480842	2·2128016	50[illegible]3977	1·9739[illegible]31	1·1210003	[illegible]79[illegible]	131[illegible]	[illegible]	8
53	4521753	2594	547[illegible]47	2·2115318	50[illegible]9634	1·9725296	1·121165[illegible]	1080709	1316	[illegible]	7
54	4524347	2594	547565[illegible]	2·2102637	507[illegible]290	1·9711077	1·121[illegible]308	1082025	1316	[illegible]	6
55	4526941	2593	[illegible]4730[illegible]	2·208997[illegible]	5076948	1·9696874	1·1214963	108[illegible]341	1317	[illegible]	5
56	4529535	2593	5470455	2·2077324	5080607	1·9682688	1·12166[illegible]0	108465[illegible]	131[illegible]	[illegible]	4
57	4532128	2593	[illegible]467872	2·2064[illegible]91	5084267	1·9668518	1·1218278	108[illegible]976	1319	[illegible]	3
58	4534721	2592	[illegible]46[illegible]279	2·205207[illegible]	[illegible]087929	1·9654364	1·1219938	10[illegible]295	1320	[illegible]	2
59	4537313	2592	[illegible]462687	2·2039476	5091591	1·9640227	1·1221600	1088615	1320	[illegible]	1
60	45399[illegible]		[illegible]460095	2·2026893	5095254	1·9626105	1·122[illegible]262	1089935		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	'

ne	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	'
842	2589	10·3581580	9·0052001	9·6881818	3205	10·3118182	9·7494404	10·0463398	617	9·9536602	60
1005	2587	10·3578991	9·0057331	9·6885022	3204	10·3114977	9·7492472	10·0464015	616	9·9535985	59
8	2586	10·3576404	9·0062907	9·6888227	3203	10·3111773	9·7490440	10·0464631	618	9·9535369	58
8182	2583	10·3573818	9·0068420	9·6891430	3201	10·3108570	9·7488442	10·0465249	617	9·9534751	57
8765	2582	10·3571235	9·0073920	9·6894631	3200	10·3105369	9·7486402	10·0465866	619	9·9534134	56
1347	2579	10·3568653	9·0079375	9·6897831	3199	10·3102169	9·7484377	10·0466485	618	9·9533515	55
926	2578	10·3566074	9·0084827	9·6901030	3196	10·3098970	9·7482314	10·0467103	619	9·9532897	54
504	2576	10·3563496	9·0090276	9·6904226	3196	10·3095774	9·7480326	10·0467722	620	9·9532278	53
080	2574	10·3560920	9·0095721	9·6907422	3194	10·3092578	9·7478299	10·0468342	620	9·9531658	52
654	257	10·3558346	9·0101162	9·6910616	3193	10·3089384	9·7476272	10·0468962	620	9·9531038	51
226	2570	10·3555774	9·0106600	9·6913809	3191	10·3086191	9·7474244	10·0469582	621	9·9530418	50
796	2569	10·3553204	9·0112034	9·6917000	3189	10·3083000	9·7472216	10·0470203	622	9·9529797	49
365	2566	10·3550635	9·0117465	9·6920189	3189	10·3079811	9·7470186	10·0470825	622	9·9529175	48
931	2565	10·3548069	9·0122891	9·6923378	3187	10·3076622	9·7468156	10·0471447	622	9·9528553	47
496	2562	10·3545504	9·0128315	9·6926565	3185	10·3073435	9·7466126	10·0472069	623	9·9527931	46
058	2561	10·3542942	9·0133735	9·6929750	3184	10·3070250	9·7464095	10·0472692	623	9·9527308	45
619	2559	10·3540381	9·0139151	9·6932934	3183	10·3067066	9·7462063	10·0473315	624	9·9526685	44
178	2557	10·3537822	9·0144564	9·6936117	3181	10·3063883	9·7460030	10·0473939	624	9·9526061	43
735	2555	10·3535265	9·0149973	9·6939298	3180	10·3060702	9·7457997	10·0474563	624	9·9525437	42
290	2554	10·3532710	9·0155378	9·6942478	3178	10·3057522	9·7455963	10·0475187	625	9·9524813	41
844	2551	10·3530156	9·0160781	9·6945656	3177	10·3054344	9·7453928	10·0475812	626	9·9524188	40
395	2550	10·3527605	9·0166179	9·6948833	3176	10·3051167	9·7451893	10·0476438	626	9·9523562	39
945	2547	10·3525055	9·0171574	9·6952009	3174	10·3047991	9·7449857	10·0477064	626	9·9522936	38
492	2546	10·3522508	9·0176965	9·6955183	3172	10·3044817	9·7447821	10·0477690	627	9·9522310	37
038	2544	10·3519962	9·0182353	9·6958355	3172	10·3041645	9·7445784	10·0478317	628	9·9521683	36
581	2542	10·3517418	9·0187738	9·6961527	3170	10·3038473	9·7443746	10·0478945	627	9·9521055	35
124	2541	10·3514876	9·0193119	9·6964697	3168	10·3035303	9·7441707	10·0479572	629	9·9520428	34
665	2538	10·3512335	9·0198496	9·6967865	3167	10·3032135	9·7439668	10·0480201	628	9·9519799	33
204	2537	10·3509797	9·0203870	9·6971032	3166	10·3028968	9·7437628	10·0480829	630	9·9519171	32
740	2534	10·3507260	9·0209240	9·6974198	3165	10·3025802	9·7435588	10·0481459	629	9·9518541	31
274	2533	10·3504726	9·0214607	9·6977363	3164	10·3022637	9·7433547	10·0482088	630	9·9517912	30
807	2531	10·3502193	9·0219970	9·6980526	3161	10·3019474	9·7431505	10·0482718	631	9·9517282	29
338	2530	10·3499662	9·0225330	9·6983687	3160	10·3016313	9·7429462	10·0483349	631	9·9516651	28
868	2527	10·3497132	9·0230687	9·6986847	3159	10·3013153	9·7427419	10·0483980	631	9·9516020	27
395	2525	10·3494605	9·0236039	9·6990006	3158	10·3009994	9·7425375	10·0484611	632	9·9515389	26
920	2524	10·3492080	9·0241389	9·6993164	3156	10·3006836	9·7423331	10·0485243	633	9·9514757	25
444	2522	10·3489556	9·0246735	9·6996320	3154	10·3003680	9·7421286	10·0485876	632	9·9514124	24
966	2520	10·3487034	9·0252077	9·6999474	3154	10·3000526	9·7419240	10·0486508	634	9·9513492	23
486	2518	10·3484514	9·0257416	9·7002628	3152	10·2997372	9·7417193	10·0487142	634	9·9512858	22
004	2517	10·3481996	9·0262752	9·7005780	3150	10·2994220	9·7415146	10·0487776	634	9·9512224	21
521	2514	10·3479479	9·0268084	9·7008930	3150	10·2991070	9·7413099	10·0488410	634	9·9511590	20
035	2513	10·3476965	9·0273412	9·7012080	3147	10·2987920	9·7411050	10·0489044	636	9·9510956	19
548	2511	10·3474452	9·0278738	9·7015227	3147	10·2984773	9·7409001	10·0489680	635	9·9510320	18
059	2509	10·3471941	9·0284059	9·7018374	314[illegible]	10·2981626	9·7406951	10·0490315	636	9·9509685	17
568	2507	10·3469432	9·0289378	9·7021519	3144	10·2978481	9·7404901	10·0490951	637	9·9509049	16
075	2506	10·3466925	9·0294[illegible]	9·702466[illegible]	3142	10·2975[illegible]	9·7402850	10·0491588	637	9·9508412	15
581	2503	10·3464419	9·0300004	9·70278[illegible]	3141	10·297219[illegible]	9·74007[illegible]	10·0492225	637	9·9507775	14
084	2502	10·3461916	9·0305312	9·703094[illegible]	3140	10·2969[illegible]	9·7398[illegible]	10·0492862	638	9·9507138	13
586	2500	10·3459414	9·0310616	9·703408[illegible]	31[illegible]9	10·2965914	9·7396692	10·0493[illegible]	639	9·9506500	12
086	2498	10·3456914	9·0315917	9·7037226	31[illegible]	10·296277[illegible]	9·7394638	10·0494139	638	9·9505861	11
584	2497	10·3454416	9·0321215	9·704036[illegible]	[illegible]	10·2959638	9·7392584	10·0494777	640	9·950[illegible]223	10
081	2494	10·3451919	9·0326509	9·7043497	[illegible]	10·29565[illegible]	9·7390529	10·0495417	[illegible]	9·950[illegible]583	9
57	2493	10·3449425	9·0331800	9·704[illegible]	31[illegible]	10·2953368	9·7388473	10·0496056	[illegible]	9·9503944	8
068	2491	10·3446932	9·0337088	9·7049765	31[illegible]	10·2950235	9·7386416	10·0496697	640	9·9503303	7
559	24[illegible]	10·3444441	9·0342372	9·7052897	3130	10·2947103	9·7384359	10·0497337	641	9·9502663	6
044	2488	10·3441952	9·0347652	9·7056027	3129	10·2943973	9·7382301	10·0497978	642	9·9502022	5
530	2485	10·3439464	9·0352929	9·705915[illegible]	3128	10·2940842	9·7380243	10·0498620	642	9·9501380	4
021	2484	10·3436979	9·0358202	9·7062283	3127	10·2937716	9·7378184	10·049926[illegible]	643	9·9500738	3
55	2482	10·3434495	9·0363474	9·7065410	3127	10·2934590	9·7376124	10·049990[illegible]	643	9·9500095	2
987	2481	10·3432013	9·0368741	9·7068537	3125	10·2931463	9·7374063	10·0500548	644	9·9499452	1
046		10·3429532	9·0374004	9·7071659		10·2928341	9·7372002	10·0501191		9·9498809	0
ne	Dif.	Secant	Covers.	Cotang.	Dif	Tang.	Verseds.	Cosec.	D.	Sine	'

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif	Cosine	′
0	4539905	2592	5460095	2·2026893	5095254	1·962610[illegible]	[illegible]	[illegible]	1321	[illegible]	
1	4542497	2591	5457503	2·2014326	5098919	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
2	4545088	2591	5454912	2·2001775	5102585	[illegible]	1·12[illegible]	[illegible]	[illegible]	[illegible]	
3	4547679	2590	5452321	2·1989240	5106252	[illegible]	1·1228[illegible]	[illegible]	[illegible]	[illegible]	
4	4550269	2590	5449731	2·1976721	5109919	[illegible]	1·1229[illegible]	[illegible]	[illegible]	[illegible]	
5	4552859	2590	5447141	2·1964219	5113588	1·95[illegible]739	[illegible]	[illegible]	1324	[illegible]	
6	4555449	2589	5444551	2·1951733	5117259	1·9541713	1·1233269	[illegible]	[illegible]	[illegible]	
7	4558038	2589	5441962	2·1939262	5120930	1·9527704	1·1234[illegible]	1099197	1327	[illegible]	
8	4560627	2589	5439373	2·1926808	5124602	1·9513741	1·1236610	1100524	1327	[illegible]	
9	4563216	2588	5436784	2·1914370	5128275	1·9499733	1·1238292	1101851	[illegible]	[illegible]	
10	4565804	2588	5434196	2·1901947	5131950	1·9485772	1·1239969	1103178	1329	[illegible]	
11	4568392	2587	5431608	2·1889541	5135625	1·9471826	1·1241648	1104507	1329	[illegible]	
12	4570979	2587	5429021	2·1877150	5139302	1·9457896	1·1243328	1105836	1330	[illegible]	
13	4573566	2587	5426434	2·1864775	5142980	1·9443981	1·1245010	1107166	1331	[illegible]	
14	4576153	2586	5423847	2·1852417	5146658	1·9430083	1·1246693	1108497	1332	[illegible]	
15	4578739	2586	5421261	2·1840074	5150338	1·9416200	1·1248377	1109829	1332	[illegible]	
16	4581325	2585	5418675	2·1827746	515[illegible]	1·9402333	1·1250063	1111161	1333	[illegible]	
17	4583910	2586	5416090	2·1815435	5157702	1·9388481	1·1251750	1112494	1334	[illegible]	
18	4586496	2584	5413[illegible]04	2·1803139	5161385	1·9374645	1·1253439	1113828	1334	[illegible]	
19	4589080	2585	5410920	2·1790859	5165069	1·9360825	1·1255130	1115162	[illegible]	[illegible]	
20	4591665	2583	5408335	2·1778595	5168755	1·9347020	1·1256821	1116497	[illegible]	[illegible]	
21	4594248	2584	5405752	2·1766346	5172441	1·9333231	1·1258514	[illegible]	[illegible]	[illegible]	
22	4596832	2583	5403168	2·1754113	5176129	1·9319457	1·1260209	1119170	[illegible]	[illegible]	
23	4599415	2583	5400585	2·1741895	5179818	1·9305699	1·12619[illegible]	[illegible]	[illegible]	[illegible]	
24	4601998	2582	5398002	2·1729693	5183508	1·9291956	1·126[illegible]	1121848	[illegible]	[illegible]	
25	4604580	2582	5395420	2·1717506	5187199	1·9278228	1·1265[illegible]	[illegible]	[illegible]	[illegible]	
26	4607162	2582	5392838	2·1705335	5190891	[illegible]	1·1267003	[illegible]	[illegible]	[illegible]	
27	4609744	2581	5390256	2·1693180	5194584	1·9250819	1·1268705	[illegible]	[illegible]	[illegible]	
28	4612325	2581	5387675	2·1681040	5198278	1·9237138	1·1270408	1127267	[illegible]	[illegible]	
29	4614906	2580	5385094	2·1668915	5201974	1·9223477	1·1272113	[illegible]	[illegible]	[illegible]	
30	4617486	2580	5382514	2·1656806	5205671	1·9209821	[illegible]	[illegible]	[illegible]	[illegible]	
31	4620066	2580	[illegible]	2·1644712	5209368	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
32	4622646	2579	5377354	2·1632633	5213067	[illegible]	[illegible]	1132580	[illegible]	[illegible]	
33	4625225	2579	5374775	2·1620570	5216767	1·9168960	1·1278948	[illegible]	[illegible]	[illegible]	
34	4627804	2578	5372196	2·1608522	5220468	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
35	4630482	2578	5369618	2·1596489	5224170	[illegible]	1·1282474	[illegible]	1342	[illegible]	
36	4632960	2578	5367040	2·1584471	5227874	1·9128236	1·1284089	[illegible]	[illegible]	[illegible]	
37	4635538	2577	5364462	2·1572469	5231578	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
38	4638115	2577	5361885	2·1560482	5235284	[illegible]	1·1287524	1140661	[illegible]	[illegible]	
39	4640692	2577	5359308	[illegible]	5238990	[illegible]	1·1289244	[illegible]	1350	[illegible]	
40	4643269	2576	5356731	[illegible]	[illegible]	[illegible]	[illegible]	1143361	[illegible]	[illegible]	
41	4645845	2575	5354155	2·1524611	5246407	[illegible]	1·1292687	1144712	[illegible]	[illegible]	
42	4648420	2576	5351580	[illegible]	5250117	[illegible]	1·1294412	1146064	[illegible]	[illegible]	
43	[illegible]	2575	5349004	2·1500772	5253829	[illegible]	1·1296137	1147416	[illegible]	[illegible]	
44	[illegible]	2574	5346429	2·1488875	5257541	[illegible]	1·1297864	1148770	[illegible]	[illegible]	
45	4656145	2574	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1150124	[illegible]	[illegible]	
46	4658719	2574	5341281	[illegible]	[illegible]	[illegible]	1·1301323	1151478	[illegible]	[illegible]	
47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
48	[illegible]	[illegible]	5336134	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
49	[illegible]	2573	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
50	[illegible]	2572	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
51	[illegible]	2572	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
52	[illegible]	2571	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1·1313475	[illegible]	[illegible]	[illegible]	
54	[illegible]	2571	[illegible]	[illegible]	[illegible]	[illegible]	1·1315217	[illegible]	[illegible]	[illegible]	
55	[illegible]	2570	5318131	[illegible]	[illegible]	1·8873436	1·1316961	[illegible]	[illegible]	[illegible]	
56	[illegible]	2570	[illegible]	[illegible]	[illegible]	1·8860172	[illegible]	[illegible]	[illegible]	[illegible]	
57	[illegible]	2569	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
58	[illegible]	2569	5310422	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
59	4692147	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
60	[illegible]		[illegible]	[illegible]	5317094	[illegible]	1·1325701	[illegible]	[illegible]	[illegible]	
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	

ine	Dif.	Cosec.	Verseds	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
70468	2478	10·3429532	9·0374005	9·7071659	3122	10·2928341	9·7472002	10·0501191	644	9·9498809	60
72946	2477	10·3427054	9·0379265	9·7074781	3121	10·2925219	9·7369940	10·0501835	644	9·9498165	59
75423	2475	10·3424577	9·0384522	9·7077902	3120	10·2922098	9·7367878	10·0502479	645	9·9497521	58
77898	2473	10·3422102	9·0389776	9·7081022	3119	10·2918978	9·7365814	10·0503124	646	9·9496876	57
80371	2471	10·3419629	9·0395026	9·7084141	3117	10·2915859	9·7363750	10·0503770	645	9·9496230	56
82842	2470	10·3417158	9·0400273	9·7087258	3116	10·2912742	9·7361686	10·0504415	647	9·9495585	55
85312	2468	10·3414688	9·0405517	9·7090374	3114	10·2909626	9·7359621	10·0505062	646	9·9494938	54
87780	2466	10·3412220	9·0410757	9·7093488	3113	10·2906512	9·7357555	10·0505708	647	9·9494292	53
90246	2464	10·3409754	9·0415994	9·7096601	3112	10·2903399	9·7355488	10·0506355	648	9·9493645	52
92710	2463	10·3407290	9·0421228	9·7099713	3111	10·2900287	9·7353421	10·0507003	648	9·9492997	51
95173	2460	10·3404827	9·0426458	9·7102824	3109	10·2897176	9·7351353	10·0507651	649	9·9492349	50
97633	2460	10·3402367	9·0431685	9·7105933	3108	10·2894067	9·7349284	10·0508300	649	9·9491700	49
00093	2457	10·3399907	9·0436908	9·7109041	3107	10·2890959	9·7347215	10·0508949	649	9·9491051	48
02550	2455	10·3397450	9·0442129	9·7112148	3106	10·2887852	9·7345145	10·0509598	650	9·9490402	47
05005	2454	10·3394995	9·0447345	9·7115254	3104	10·2884746	9·7343074	10·0510248	651	9·9489752	46
07459	2452	10·3392541	9·0452559	9·7118358	3103	10·2881642	9·7341003	10·0510899	651	9·9489101	45
09911	2450	10·3390089	9·0457769	9·7121461	3101	10·2878539	9·7338931	10·0511550	651	9·9488450	44
12361	2449	10·3387639	9·0462976	9·7124562	3100	10·2875438	9·7336858	10·0512201	652	9·9487799	43
14810	2447	10·3385190	9·0468180	9·7127662	3099	10·2872338	9·7334785	10·0512853	652	9·9487147	42
17257	2445	10·3382743	9·0473380	9·7130761	3098	10·2869239	9·7332711	10·0513505	653	9·9486495	41
19702	2443	10·3380298	9·0478578	9·7133859	3097	10·2866141	9·7330636	10·0514158	653	9·9485842	40
22145	2441	10·3377855	9·0483771	9·7136956	3095	10·2863044	9·7328561	10·0514811	654	9·9485189	39
24586	2440	10·3375414	9·0488962	9·7140051	3094	10·2859949	9·7326485	10·0515465	654	9·9484535	38
27026	2438	10·3372974	9·0494149	9·7143145	3092	10·2856855	9·7324408	10·0516119	654	9·9483881	37
29464	2436	10·3370536	9·0499333	9·7146237	3092	10·2853763	9·7322331	10·0516773	655	9·9483227	36
31900	2435	10·3368100	9·0504514	9·7149329	3090	10·2850671	9·7320252	10·0517428	656	9·9482572	35
34335	2433	10·3365665	9·0509691	9·7152419	3089	10·2847581	9·7318174	10·0518084	656	9·9481916	34
36768	2431	10·3363232	9·0514865	9·7155508	3087	10·2844492	9·7316094	10·0518740	656	9·9481260	33
39199	2429	10·3360801	9·0520036	9·7158595	3087	10·2841405	9·7314014	10·0519396	657	9·9480604	32
41628	2428	10·3358372	9·0525204	9·7161682	3085	10·2838318	9·7311933	10·0520053	658	9·9479947	31
44056	2426	10·3355944	9·0530368	9·7164767	3084	10·2835233	9·7309852	10·0520711	658	9·9479289	30
46482	2424	10·3353518	9·0535529	9·7167851	3082	10·2832149	9·7307769	10·0521369	658	9·9478631	29
48906	2423	10·3351094	9·0540687	9·7170933	3081	10·2829067	9·7305686	10·0522027	659	9·9477973	28
51329	2420	10·3348671	9·0545842	9·7174014	3080	10·2825986	9·7303603	10·0522686	659	9·9477314	27
53749	2419	10·3346251	9·0550993	9·7177094	3079	10·2822906	9·7301519	10·0523345	660	9·9476655	26
56168	2418	10·3343832	9·0556141	9·7180173	3078	10·2819827	9·7299434	10·0524005	660	9·9475995	25
58586	2415	10·3341414	9·0561286	9·7183251	3076	10·2816749	9·7297348	10·0524665	661	9·9475335	24
61001	2414	10·3338999	9·0566428	9·7186327	3075	10·2813673	9·7295262	10·0525326	661	9·9474674	23
63415	2413	10·3336585	9·0571566	9·7189402	3074	10·2810598	9·7293175	10·0525987	661	9·9474013	22
65828	2410	10·3334172	9·0576701	9·7192476	3073	10·2807524	9·7291087	10·0526648	663	9·9473352	21
68238	2409	10·3331762	9·0581833	9·7195549	3071	10·2804451	9·7288999	10·0527311	662	9·9472689	20
70647	2407	10·3329353	9·0586962	9·7198620	3070	10·2801380	9·7286910	10·0527973	663	9·9472027	19
73054	2405	10·3326946	9·0592088	9·7201690	3069	10·2798310	9·7284820	10·0528636	664	9·9471364	18
75459	2404	10·3324541	9·0597210	9·7204759	3068	10·2795241	9·7282729	10·0529300	664	9·9470700	17
77863	2402	10·3322137	9·0602329	9·7207827	3066	10·2792173	9·7280638	10·0529964	664	9·9470036	16
80265	2400	10·3319735	9·0607445	9·7210893	3065	10·2789107	9·7278546	10·0530628	665	9·9469372	15
82665	2399	10·3317335	9·0612558	9·7213958	3064	10·2786042	9·7276454	10·0531293	665	9·9468707	14
85064	2397	10·3314936	9·0617668	9·7217022	3063	10·2782978	9·7274361	10·0531958	666	9·9468042	13
87461	2395	10·3312539	9·0622774	9·7220085	3062	10·2779915	9·7272267	10·0532624	666	9·9467376	12
89856	2394	10·3310144	9·0627877	9·7223147	3060	10·2776853	9·7270172	10·0533290	667	9·9466710	11
92250	2392	10·3307750	9·0632977	9·7226207	3059	10·2773793	9·7268077	10·0533957	667	9·9466043	10
94642	2390	10·3305358	9·0638074	9·7229266	3058	10·2770734	9·7265981	10·0534624	668	9·9465376	9
97032	2388	10·3302968	9·0643168	9·7232324	3057	10·2767676	9·7263885	10·0535292	668	9·9464708	8
99420	2387	10·3300580	9·0648258	9·7235381	3055	10·2764619	9·7261787	10·0535960	669	9·9464040	7
01807	2385	10·3298193	9·0653346	9·7238436	3054	10·2761564	9·7259689	10·0536629	669	9·9463371	6
04192	2384	10·3295808	9·0658430	9·7241490	3053	10·2758510	9·7257591	10·0537298	670	9·9462702	5
06576	2382	10·3293424	9·0663511	9·7244543	3052	10·2755457	9·7255491	10·0537968	670	9·9462032	4
08958	2380	10·3291042	9·0668589	9·7247595	3051	10·2752405	9·7253391	10·0538638	670	9·9461362	3
11338	2378	10·3288662	9·0673663	9·7250646	3049	10·2749354	9·7251290	10·0539308	671	9·9460692	2
13716	2377	10·3286284	9·0678735	9·7253695	3049	10·2746305	9·7249189	10·0539979	672	9·9460021	1
16093		10·3283907	9·0683803	9·7256744		10·2743256	9·7247087	10·0540651		9·9459349	0
sine	Dif.	Secant	Covers.	Cotang.	Dif	Tang.	Verseds.	Cosec.	D.	Sine	′

Deg. 62.

'	Sine	Dif	Covers	Cosec.	Tang	Cotang.	Secant	Vers.
0	4694716	2568	5305284	2·1300545	5317094	1·8807265	1·1325701	1170524
1	4697284	2568	5302716	2·1288899	5320846	1·8794074	1·1327153	1171890
2	4699852	2567	5300148	2·1277267	5324599	1·8780898	1·1329207	1173257
3	4702419	2567	5297581	2·1265651	5328352	1·8767736	1·1330962	1174624
4	4704986	2567	5295014	2·1254048	5332029	1·8754588	1·1332719	1175993
5	4707553	2566	5292447	2·1242460	5335861	1·8741455	1·1334478	1177362
6	4710119	2566	5289881	2·1230887	5339503	1·8728336	1·1336238	1178731
7	4712685	2565	5287315	2·1219328	5343242	1·8715241	1·1337999	1180102
8	4715250	2565	5284750	2·1207783	5346981	1·8702141	1·1339762	1181473
9	4717815	2565	5282185	2·1196253	5350725	1·8689065	1·1341527	1182845
10	4720380	2564	5279620	2·1184737	5354465	1·8676003	1·1343293	1184218
11	4722944	2564	5277056	2·1173235	5358208	1·8662955	1·1345060	1185591
12	4725508	2563	5274492	2·1161748	5361953	1·8649921	1·1346829	1186965
13	4728071	2563	5271929	2·1150274	5365699	1·8636902	1·1348600	1188340
14	4730634	2563	5269366	2·1138815	5369446	1·8623896	1·1350372	1189716
15	4733197	2562	5266803	2·1127371	5373194	1·8610905	1·1352146	1191093
16	4735759	2562	5264241	2·1115940	5376943	1·8597928	1·1353921	1192470
17	4738321	2561	5261679	2·1104523	5380694	1·8584965	1·1355697	1193848
18	4740882	2561	5259118	2·1093121	5384445	1·8572015	1·[illegible]	1195226
19	4743443	2561	5256557	2·1081733	5388198	1·8559080	1·1359255	1196606
20	4746004	2560	5253996	2·1070359	5391952	1·8546159	1·1361036	1197986
21	4748564	2560	5251436	2·1058998	5395707	1·8533252	1·1362819	1199367
22	4751124	2559	5248876	2·1047652	5399464	1·8520358	1·1364603	1200749
23	4753683	2559	5246317	2·1036320	5403221	1·8507479	1·1366389	1202131
24	4756242	2559	5243758	2·1025002	5406980	1·8494613	1·1368176	1203514
25	4758801	2558	5241199	2·1013698	5410740	1·8481761	1·1369965	1204898
26	4761359	2558	5238641	2·1002408	5414501	1·8468923	1·1371755	1206283
27	4763917	2557	5236083	2·0991131	5418263	1·8456099	1·1373547	1207668
28	4766474	2557	5233526	2·0979869	5422027	1·8443289	1·1375341	1209054
29	4769031	2557	5230969	2·0968620	5425791	1·8430492	1·1377135	1210441
30	4771588	2556	5228412	2·0957385	5429557	1·8417709	1·1378932	1211829
31	4774144	2556	5225856	2·0946164	5433324	1·8404940	1·1380730	1213217
32	4776700	2555	5223300	2·0934957	5437092	1·8392184	1·1382529	1214606
33	4779255	2555	5220745	2·0923764	5440862	1·8379442	1·1384330	1215996
34	4781810	2554	5218190	2·0912584	5444632	1·8366713	1·1386133	1217387
35	4784364	2555	5215636	2·0901418	5448404	1·8353999	1·1387937	1218778
36	4786919	2553	5213081	2·0890265	5452177	1·8341297	1·1389742	1220170
37	4789472	2554	5210528	2·0879127	5455951	1·8328610	1·1391550	1221563
38	4792026	2553	5207974	2·0868002	5459727	1·8315936	1·1393358	1222957
39	4794579	2552	5205421	2·0856890	5463503	1·8303275	1·1395169	1224351
40	4797131	2552	5202869	2·0845792	5467281	1·8290628	1·1396980	1225746
41	4799683	2552	5200317	2·0834708	5471060	1·8277994	1·1398794	1227142
42	4802235	2551	5197765	2·0823637	5474840	1·8265374	1·1400608	1228538
43	4804786	2551	5195214	2·0812580	5478621	1·8252767	1·1402425	1229936
44	4807337	2551	5192663	2·0801536	5482404	1·8240173	1·1404243	1231334
45	4809888	2550	5190112	2·0790506	5486188	1·8227593	1·1406062	1232732
46	4812438	2549	5187562	2·0779489	5489973	1·8215026	1·1407883	1234132
47	4814987	2550	5185013	2·0768485	5493759	1·8202473	1·1409706	1235532
48	4817537	2549	5182463	2·0757496	5497547	1·8189932	1·1411530	1236933
49	4820086	2548	5179914	2·0746519	5501336	1·8177405	1·1413356	1238335
50	4822634	2548	5177366	2·0735556	5505125	1·8164892	1·1415183	1239737
51	4825182	2548	5174818	2·0724606	5508916	1·8152391	1·1417012	1241141
52	4827730	2547	5172270	2·0713670	5512708	1·8139904	1·1418842	1242545
53	4830277	2547	5169723	2·0702746	5516502	1·8127430	1·1420674	1243949
54	4832824	2546	5167176	2·0691836	5520297	1·8114969	1·1422507	1245355
55	4835370	2546	5164630	2·0680940	5524093	1·8102521	1·1424342	1246761
56	4837916	2546	5162084	2·0670056	5527890	1·8090086	1·1426179	1248168
57	4840462	2545	5159538	2·0659186	5531688	1·8077664	1·1428017	1249575
58	4843007	2545	5156993	2·0648328	5535488	1·8065256	1·1429857	1250984
59	4845552	2544	5154448	2·0637484	5539288	1·8052860	1·1431698	1252393
60	4848096		5151904	2·0626653	5543091	1·8040478	1·1433541	1253803
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·6716093	2375	10·3283907	9·0683803	9·7256744	3047	10·2743256	9·72470[illegible]	10·0540651	672	9·9459349	60
1	9·6718468	2373	10·3281532	9·0688869	9·7259791	3046	10·2740209	9·7244944	10·0541323	672	9·9458677	59
2	9·6720841	2372	10·3279159	9·0693931	9·7262837	3044	10·2737163	9·7242860	10·0541995	673	9·9458005	58
3	9·6723213	2370	10·3276787	9·0698990	9·7265881	3044	10·2734119	9·7240776	10·0542668	673	9·9457332	57
4	9·6725583	2369	10·3274417	9·0704046	9·7268925	3042	10·2731075	9·7238671	10·0543341	674	9·9456659	56
5	9·6727952	2367	10·3272048	9·0709099	9·7271967	3041	10·2728033	9·7236565	10·0544015	675	9·9455985	55
6	9·6730319	2365	10·3269681	9·0714148	9·7275008	3040	10·2724992	9·7234459	10·0544690	674	9·9455310	54
7	9·6732684	2363	10·3267316	9·0719195	9·7278048	3039	10·2721952	9·7232352	10·0545364	676	9·9454636	53
8	9·6735047	2362	10·3264953	9·0724236	9·7281087	3037	10·2718913	9·7230244	10·0546040	675	9·9453960	52
9	9·6737409	2360	10·3262591	9·0729279	9·7284124	3037	10·2715876	9·7228136	10·0546715	676	9·9453285	51
10	9·6739769	2359	10·3260231	9·0734316	9·7287161	3035	10·2712839	9·7226027	10·0547391	677	9·9452609	50
11	9·6742128	2357	10·3257872	9·0739350	9·7290196	3034	10·2709804	9·7223917	10·0548068	677	9·9451932	49
12	9·6744485	2355	10·3255515	9·0744381	9·7293230	3033	10·2706770	9·7221807	10·0548745	678	9·9451255	48
13	9·6746840	2354	10·3253160	9·0749409	9·7296263	3032	10·2703737	9·7219695	10·0549423	678	9·9450577	47
14	9·6749194	2352	10·3250806	9·0754434	9·7299295	3030	10·2700705	9·7217584	10·0550101	679	9·9449899	46
15	9·6751546	2350	10·3248454	9·0759455	9·7302325	3029	10·2697675	9·7215471	10·0550780	679	9·9449220	45
16	9·6753896	2349	10·3246104	9·0764474	9·7305354	3029	10·2694646	9·7213358	10·0551459	679	9·9448541	44
17	9·6756245	2347	10·3243755	9·0769490	9·7308383	3027	10·2691617	9·7211244	10·0552138	680	9·9447862	43
18	9·6758592	2345	10·3241408	9·0774502	9·7311410	3026	10·2688590	9·7209129	10·0552818	681	9·9447182	42
19	9·6760937	2344	10·3239063	9·0779511	9·7314436	3024	10·2685564	9·7207014	10·0553499	680	9·9446501	41
20	9·6763281	2342	10·3236719	9·0784518	9·7317460	3024	10·2682540	9·7204898	10·0554179	682	9·9445821	40
21	9·6765623	2340	10·3234377	9·0789521	9·7320484	3022	10·2679516	9·7202781	10·0554861	682	9·9445139	39
22	9·6767963	2339	10·3232037	9·0794521	9·7323506	3021	10·2676494	9·7200663	10·0555543	682	9·9444457	38
23	9·6770302	2338	10·3229698	9·0799518	9·7326527	3020	10·2673473	9·7198545	10·0556225	683	9·9443775	37
24	9·6772640	2335	10·3227360	9·0804512	9·7329547	3019	10·2670453	9·7196426	10·0556908	683	9·9443092	36
25	9·6774975	2334	10·3225025	9·0809503	9·7332566	3018	10·2667434	9·7194307	10·0557591	684	9·9442409	35
26	9·6777309	2333	10·3222691	9·0814491	9·7335584	3017	10·2664416	9·7192186	10·0558275	684	9·9441725	34
27	9·6779642	2330	10·3220358	9·0819476	9·7338601	3015	10·2661399	9·7190066	10·0558959	685	9·9441041	33
28	9·6781972	2329	10·3218028	9·0824458	9·7341616	3015	10·2658384	9·7187944	10·0559644	685	9·9440356	32
29	9·6784301	2328	10·3215699	9·0829437	9·7344631	3013	10·2655369	9·7185821	10·0560329	686	9·9439671	31
30	9·6786629	2326	10·3213371	9·0834413	9·7347644	3012	10·2652356	9·7183698	10·0561015	686	9·9438985	30
31	9·6788955	2324	10·3211045	9·0839386	9·7350656	3011	10·2649344	9·7181575	10·0561701	687	9·9438299	29
32	9·6791279	2323	10·3208721	9·0844356	9·7353667	3010	10·2646333	9·7179450	10·0562388	687	9·9437612	28
33	9·6793602	2321	10·3206398	9·0849322	9·7356677	3008	10·2643323	9·7177325	10·0563075	687	9·9436925	27
34	9·6795923	2320	10·3204077	9·0854286	9·7359685	3008	10·2640315	9·7175199	10·0563762	688	9·9436238	26
35	9·6798243	2317	10·3201757	9·0859247	9·7362693	3006	10·2637307	9·7173072	10·0564451	688	9·9435549	25
36	9·6800560	2317	10·3199440	9·0864204	9·7365699	3006	10·2634301	9·7170945	10·0565139	689	9·9434861	24
37	9·6802877	2314	10·3197123	9·0869159	9·7368705	3004	10·2631295	9·7168817	10·0565828	690	9·9434172	23
38	9·6805191	2313	10·3194809	9·0874111	9·7371709	3003	10·2628291	9·7166688	10·0566518	690	9·9433482	22
39	9·6807504	2312	10·3192496	9·0879059	9·7374712	3002	10·2625288	9·7164559	10·0567208	690	9·9432792	21
40	9·6809816	2310	10·3190184	9·0884005	9·7377714	3001	10·2622286	9·7162429	10·0567898	691	9·9432102	20
41	9·6812126	2308	10·3187874	9·0888948	9·7380715	2999	10·2619285	9·7160298	10·0568589	691	9·9431411	19
42	9·6814434	2307	10·3185566	9·0893887	9·7383714	2999	10·2616286	9·7158166	10·0569280	692	9·9430720	18
43	9·6816741	2305	10·3183259	9·0898824	9·7386713	2997	10·2613287	9·7156034	10·0569972	693	9·9430028	17
44	9·6819046	2303	10·3180954	9·0903758	9·7389710	2997	10·2610290	9·7153901	10·0570665	692	9·9429335	16
45	9·6821349	2302	10·3178651	9·0908688	9·7392707	2995	10·2607293	9·7151768	10·0571357	694	9·9428643	15
46	9·6823651	2301	10·3176349	9·0913616	9·7395702	2994	10·2604298	9·7149633	10·0572051	694	9·9427949	14
47	9·6825952	2298	10·3174048	9·0918541	9·7398696	2993	10·2601304	9·7147498	10·0572745	694	9·9427255	13
48	9·6828250	2298	10·3171750	9·0923462	9·7401689	2992	10·2598311	9·7145362	10·0573439	695	9·9426561	12
49	9·6830548	2295	10·3169452	9·0928381	9·7404681	2991	10·2595319	9·7143226	10·0574134	695	9·9425866	11
50	9·6832843	2294	10·3167157	9·0933297	9·7407672	2990	10·2592328	9·7141089	10·0574829	695	9·9425171	10
51	9·6835137	2293	10·3164863	9·0938210	9·7410662	2988	10·2589338	9·7138951	10·0575524	697	9·9424476	9
52	9·6837430	2290	10·3162570	9·0943120	9·7413650	2988	10·2586350	9·7136812	10·0576221	696	9·9423779	8
53	9·6839720	2290	10·3160280	9·0948027	9·7416638	2986	10·2583362	9·7134673	10·0576917	697	9·9423083	7
54	9·6842010	2287	10·3157990	9·0952931	9·7419624	2985	10·2580376	9·7132533	10·0577614	698	9·9422386	6
55	9·6844297	2286	10·3155703	9·0957832	9·7422609	2985	10·2577391	9·7130392	10·0578312	698	9·9421688	5
56	9·6846583	2285	10·3153417	9·0962730	9·7425594	2983	10·2574406	9·7128250	10·0579010	699	9·9420990	4
57	9·6848868	2283	10·3151132	9·0967625	9·7428577	2982	10·2571423	9·7126108	10·0579709	699	9·9420291	3
58	9·6851151	2281	10·3148849	9·0972517	9·7431559	2981	10·2568441	9·7123965	10·0580408	699	9·9419592	2
59	9·6853432	2280	10·3146568	9·0977406	9·7434540	2980	10·2565460	9·7121822	10·0581107	700	9·9418893	1
60	9·6855712		10·3144288	9·0982293	9·7437520		10·2562480	9·7119677	10·0581807		9·9418193	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	4848096	2544	5151904	2·0626653	5543091	1·8040478	1·1433541	1253803	1411	[illegible]	60
1	4850640	2544	5149360	2·0615836	5546894	1·8028108	1·1435383	1255214	1411	[illegible]	59
2	4853184	2543	5146816	2·0605031	5550698	1·8015751	1·1437231	1256625	1412	[illegible]	58
3	4855727	2543	5144273	2·0594239	5554504	1·8003409	1·1439078	1258037	1413	[illegible]	57
4	4858270	2542	5141730	2·0583460	5558311	1·7991077	1·1440927	1259450	1413	[illegible]	56
5	4860812	2542	5139188	2·0572695	5562119	1·7978759	1·1442778	1260863	1415	[illegible]	55
6	4863354	2541	5136646	2·0561942	5565929	1·7966454	1·1444630	1262278	1415	[illegible]	54
7	4865895	2541	5134105	2·0551203	5569739	1·7954162	1·1446484	1263693	1416	[illegible]	53
8	4868436	2541	5131564	2·0540476	5573551	1·7941883	1·1448339	1265109	1417	[illegible]	52
9	4870977	2540	5129023	2·0529762	5577364	1·7929616	1·1450196	1266526	1417	[illegible]	51
10	4873517	2540	5126483	2·0519061	5581179	1·7917362	1·1452055	1267943	1418	[illegible]	50
11	4876057	2540	5123943	2·0508373	5584994	1·7905121	1·1453915	1269361	1419	[illegible]	49
12	4878597	2539	5121403	2·0497698	5588811	1·7892893	1·1455776	1270779	1420	[illegible]	48
13	4881136	2538	5118864	2·0487036	5592629	1·7880678	1·1457639	1272199	1420	[illegible]	47
14	4883674	2538	5116326	2·0476386	5596449	1·7868475	1·1459503	1273619	1421	[illegible]	46
15	4886212	2538	5113788	2·0465750	5600269	1·7856285	1·1461371	1275040	1422	[illegible]	45
16	4888750	2538	5111250	2·0455126	5604091	1·7844107	1·1463238	1276462	1422	[illegible]	44
17	4891288	2537	5108712	2·0444515	5607914	1·7831943	1·1465108	1277884	1423	[illegible]	43
18	4893825	2536	5106175	2·0433916	5611738	1·7819790	1·1466979	1279307	1424	[illegible]	42
19	4896361	2536	5103639	2·0423330	5615564	1·7807651	1·1468852	1280731	1425	[illegible]	41
20	4898897	2536	5101103	2·0412757	5619391	1·7795524	1·1470726	1282156	1425	[illegible]	40
21	4901433	2535	5098567	2·0402197	5623219	1·7783409	1·1472602	1283581	1426	[illegible]	39
22	4903968	2535	5096032	2·0391649	5627048	1·7771307	1·1474479	1285007	1427	[illegible]	38
23	4906503	2535	5093497	2·0381114	5630879	1·7759218	1·1476358	1286434	1428	[illegible]	37
24	4909038	2534	5090962	2·0370592	5634710	1·7747141	1·1478239	1287862	1428	[illegible]	36
25	4911572	2533	5088428	2·0360082	5638543	1·7735076	1·1480121	1289290	1429	[illegible]	35
26	4914105	2533	5085895	2·0349585	5642378	1·7723024	1·1482005	1290719	1430	[illegible]	34
27	4916638	2533	5083362	2·0339100	5646213	1·7710985	1·1483890	1292149	1431	[illegible]	33
28	4919171	2533	5080829	2·0328628	5650050	1·7698958	1·1485777	1293580	1431	[illegible]	32
29	4921704	2532	5078296	2·0318168	5653888	1·7686943	1·1487665	1295011	1432	[illegible]	31
30	4924236	2531	5075764	2·0307720	5657728	1·7674940	1·1489555	1296443	1433	[illegible]	30
31	4926767	2531	5073233	2·0297286	5661568	1·7662950	1·1491447	1297876	1433	[illegible]	29
32	4929298	2531	5070702	2·0286863	5665410	1·7650972	1·1493340	1299309	1435	[illegible]	28
33	4931829	2530	5068171	2·0276453	5669254	1·7639007	1·1495235	1300744	1435	[illegible]	27
34	4934359	2530	5065641	2·0266056	5673098	1·7627053	1·1497132	1302179	1435	[illegible]	26
35	4936889	2530	5063111	2·0255670	5676944	1·7615112	1·1499030	1303614	1437	[illegible]	25
36	4939419	2529	5060581	2·0245297	5680791	1·7603183	1·1500930	1305051	1437	[illegible]	24
37	4941948	2528	5058052	2·0234937	5684639	1·7591267	1·1502831	1306488	1438	[illegible]	23
38	4944476	2529	5055524	2·0224589	5688488	1·7579362	1·1504734	1307926	1438	[illegible]	22
39	4947005	2527	5052995	2·0214253	5692339	1·7567470	1·1506638	1309364	1440	[illegible]	21
40	4949532	2528	5050468	2·0203929	5696191	1·7555590	1·1508544	1310804	1440	[illegible]	20
41	4952060	2527	5047940	2·0193618	5700045	1·7543722	1·1510452	1312244	1441	[illegible]	19
42	4954587	2526	5045413	2·0183318	5703899	1·7531866	1·1512361	1313685	1441	[illegible]	18
43	4957113	2526	5042887	2·0173031	5707755	1·7520023	1·1514272	1315126	1443	[illegible]	17
44	4959639	2526	5040361	2·0162756	5711612	1·7508191	1·1516185	1316569	1443	[illegible]	16
45	4962165	2525	5037835	2·0152494	5715471	1·7496371	1·1518099	1318012	1444	[illegible]	15
46	4964690	2525	5035310	2·0142243	5719331	1·7484564	1·1520015	1319456	1444	[illegible]	14
47	4967215	2525	5032785	2·0132005	5723192	1·7472768	1·1521932	1320900	1445	[illegible]	13
48	4969740	2524	5030260	2·0121779	5727054	1·7460984	1·1523851	1322345	1446	[illegible]	12
49	4972264	2523	5027736	2·0111564	5730918	1·7449213	1·1525772	1323791	1447	[illegible]	11
50	4974787	2523	5025213	2·0101362	5734783	1·7437453	1·1527694	1325238	1448	[illegible]	10
51	4977310	2523	5022690	2·0091172	5738649	1·7425705	1·1529619	1326686	1448	[illegible]	9
52	4979833	2522	5020167	2·0080994	5742516	1·7413969	1·1531543	1328134	1449	[illegible]	8
53	4982355	2522	5017645	2·0070828	5746385	1·7402245	1·1533470	1329583	1450	[illegible]	7
54	4984877	2522	5015123	2·0060674	5750255	1·7390533	1·1535399	1331033	1450	[illegible]	6
55	4987399	2521	5012601	2·0050532	5754126	1·7378833	1·1537329	1332483	1451	[illegible]	5
56	4989920	2521	5010080	2·0040402	5757999	1·7367144	1·1539261	1333934	1452	[illegible]	4
57	4992441	2520	5007559	2·0030283	5761873	1·7355468	1·1541195	1335386	1453	[illegible]	3
58	4994961	2520	5005039	2·0020177	5765748	1·7343803	1·1543130	1336839	1453	[illegible]	2
59	4997481	2519	5002519	2·0010083	5769625	1·7332149	1·1545067	1338292	1454	[illegible]	1
60	5000000		5000000	2·0000000	5773503	1·7320508	1·1547005	1339746		8660254	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

'	Sine	Dif	Cosec.	Verseds	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine
0	9·6855712	2279	10·3144288	9·0982293	9·7437520	2979	10·2562480	9·7119677	10·0581807	701	9·9418193
1	9·6857991	2276	10·3142009	9·0987176	9·7440499	2977	10·2559501	9·7117532	10·0582508	701	9·9417492
2	9·6860267	2275	10·3139733	9·0992057	9·7443476	2977	10·2556524	9·7115387	10·0583209	701	9·9416791
3	9·6862542	2274	10·3137458	9·0996944	9·7446453	2975	10·2553547	9·7113240	10·0583910	702	9·9416090
4	9·6864816	2272	10·3135184	9·1001809	9·7449428	2975	10·2550572	9·7111094	10·0584612	704	9·9415388
5	9·6867088	2271	10·3132912	9·1006681	9·7452403	2973	10·2547597	9·7108945	10·0585315	703	9·9414685
6	9·6869359	2269	10·3130641	9·1011549	9·7455376	2973	10·2544624	9·7106797	10·0586018	703	9·9413982
7	9·6871628	2267	10·3128372	9·1016415	9·7458349	2971	10·2541651	9·7104647	10·0586721	704	9·9413279
8	9·6873895	2266	10·3126105	9·1021278	9·7461320	2970	10·2538680	9·7102497	10·0587425	704	9·9412575
9	9·6876161	2264	10·3123839	9·1026138	9·7464290	2969	10·2535710	9·7100346	10·0588129	705	9·9411871
10	9·6878425	2263	10·3121575	9·1030995	9·7467259	2968	10·2532741	9·7098195	10·0588834	705	9·9411166
11	9·6880688	2261	10·3119312	9·1035850	9·7470227	2967	10·2529773	9·7096043	10·0589539	706	9·9410461
12	9·6882949	2260	10·3117051	9·1040701	9·7473194	2966	10·2526806	9·7093890	10·0590245	707	9·9409755
13	9·6885209	2258	10·3114791	9·1045550	9·7476160	2965	10·2523840	9·7091736	10·0590952	706	9·9409048
14	9·6887467	2256	10·3112533	9·1050395	9·7479125	2964	10·2520875	9·7089582	10·0591658	706	9·9408342
15	9·6889723	2255	10·3110277	9·1055238	9·7482089	2963	10·2517911	9·7087427	10·0592366	707	9·9407634
16	9·6891978	2254	10·3108022	9·1060078	9·7485052	2961	10·2514948	9·7085271	10·0593073	708	9·9406927
17	9·6894232	2252	10·3105768	9·1064915	9·7488013	2961	10·2511987	9·7083115	10·0593781	709	9·9406219
18	9·6896484	2250	10·3103516	9·1069749	9·7490974	2960	10·2509026	9·7080957	10·0594490	709	9·9405510
19	9·6898734	2249	10·3101266	9·1074580	9·7493934	2958	10·2506066	9·7078799	10·0595199	710	9·9404801
20	9·6900983	2248	10·3099017	9·1079408	9·7496892	2958	10·2503108	9·7076641	10·0595909	710	9·9404091
21	9·6903231	2245	10·3096769	9·1084234	9·7499850	2956	10·2500150	9·7074481	10·0596619	711	9·9403381
22	9·6905476	2245	10·3094524	9·1089056	9·7502806	2956	10·2497194	9·7072321	10·0597330	711	9·9402670
23	9·6907721	2243	10·3092279	9·1093876	9·7505762	2954	10·2494238	9·7070160	10·0598041	711	9·9401959
24	9·6909964	2241	10·3090036	9·1098693	9·7508716	2953	10·2491284	9·7067999	10·0598752	713	9·9401248
25	9·6912205	2240	10·3087795	9·1103507	9·7511669	2953	10·2488331	9·7065837	10·0599465	712	9·9400535
26	9·6914445	2238	10·3085555	9·1108318	9·7514622	2951	10·2485378	9·7063674	10·0600177	713	9·9399823
27	9·6916683	2236	10·3083317	9·1113126	9·7517573	2950	10·2482427	9·7061510	10·0600890	714	9·9399110
28	9·6918919	2236	10·3081081	9·1117932	9·7520524	2949	10·2479477	9·7059346	10·0601604	714	9·9398396
29	9·6921155	2234	10·3078845	9·1122735	9·7523472	2948	10·2476528	9·7057180	10·0602316	714	9·9397684
30	9·6923388	2232	10·3076612	9·1127534	9·7526420	2948	10·2473580	9·7055015	10·0603032	715	9·9396968
31	9·6925620	2231	10·3074380	9·1132331	9·7529368	2946	10·2470632	9·7052848	10·0603747	714	9·9396253
32	9·6927851	2229	10·3072149	9·1137126	9·7532314	2945	10·2467686	9·7050681	10·0604463	716	9·9395537
33	9·6930080	2228	10·3069920	9·1141917	9·7535259	2944	10·2464741	9·7048514	10·0605179	715	9·9394821
34	9·6932308	2226	10·3067692	9·1146705	9·7538203	2943	10·2461797	9·7046344	10·0605895	717	9·9394105
35	9·6934534	2224	10·3065466	9·1151491	9·7541147	2942	10·2458854	9·7044174	10·0606612	717	9·9393388
36	9·6936758	2223	10·3063242	9·1156274	9·7544088	2941	10·2455912	9·7042004	10·0607329	718	9·9392671
37	9·6938981	2222	10·3061019	9·1161054	9·7547029	2940	10·2452971	9·7039833	10·0608047	719	9·9391953
38	9·6941203	2220	10·3058797	9·1165831	9·7549969	2939	10·2450031	9·7037661	10·0608766	719	9·9391234
39	9·6943423	2219	10·3056577	9·1170606	9·7552908	2938	10·2447092	9·7035489	10·0609485	719	9·9390515
40	9·6945642	2217	10·3054358	9·1175377	9·7555846	2937	10·2444154	9·7033316	10·0610204	720	9·9389796
41	9·6947859	2215	10·3052141	9·1180146	9·7558783	2937	10·2441217	9·7031142	10·0610924	720	9·9389076
42	9·6950074	2214	10·3049926	9·1184912	9·7561718	2935	10·2438282	9·7028967	10·0611644	721	9·9388356
43	9·6952288	2213	10·3047712	9·1189675	9·7564653	2934	10·2435347	9·7026792	10·0612365	721	9·9387635
44	9·6954501	2211	10·3045499	9·1194436	9·7567587	2933	10·2432413	9·7024616	10·0613086	722	9·9386914
45	9·6956712	2210	10·3043288	9·1199193	9·7570520	2932	10·2429480	9·7022439	10·0613808	722	9·9386192
46	9·6958922	2208	10·3041078	9·1203948	9·7573452	2931	10·2426548	9·7020262	10·0614530	723	9·9385470
47	9·6961130	2206	10·3038870	9·1208700	9·7576383	2930	10·2423617	9·7018084	10·0615253	723	9·9384747
48	9·6963336	2205	10·3036664	9·1213449	9·7579313	2929	10·2420687	9·7015905	10·0615976	724	9·9384024
49	9·6965541	2204	10·3034459	9·1218196	9·7582242	2928	10·2417758	9·7013725	10·0616700	724	9·9383300
50	9·6967745	2202	10·3032255	9·1222939	9·7585170	2926	10·2414830	9·7011545	10·0617424	725	9·9382576
51	9·6969947	2201	10·3030053	9·1227680	9·7588096	2926	10·2411904	9·7009363	10·0618149	725	9·9381851
52	9·6972148	2199	10·3027852	9·1232419	9·7591022	2925	10·2408978	9·7007182	10·0618874	726	9·9381126
53	9·6974347	2198	10·3025653	9·1237154	9·7593947	2924	10·2406053	9·7004999	10·0619600	726	9·9380400
54	9·6976545	2196	10·3023455	9·1241887	9·7596871	2923	10·2403129	9·7002816	10·0620326	727	9·9379674
55	9·6978741	2195	10·3021259	9·1246617	9·7599794	2922	10·2400206	9·7000631	10·0621053	727	9·9378947
56	9·6980936	2193	10·3019064	9·1251344	9·7602716	2921	10·2397284	9·6998447	10·0621780	728	9·9378220
57	9·6983129	2192	10·3016871	9·1256068	9·7605637	2920	10·2394363	9·6996261	10·0622508	728	9·9377492
58	9·6985321	2190	10·3014679	9·1260790	9·7608557	2919	10·2391443	9·6994075	10·0623236	729	9·9376764
59	9·6987511	2189	10·3012489	9·1265508	9·7611476	2918	10·2388524	9·6991888	10·0623965	729	9·9376035
60	9·6989700		10·3010300	9·1270225	9·7614394		10·2385606	9·6989700	10·0624694		9·9375306
'	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	5000000	2519	5000000	2·0000000	5773503	1·7320508	1·1547005	1339746	1455	[illegible]	60
1	5002519	2518	4997481	1·9989929	5777382	1·7308878	1·1548945	1341201	1455	[illegible]	[illegible]
2	5005037	2519	4994963	1·9979870	5781262	1·7297260	1·1550887	1342656	1457	[illegible]	[illegible]
3	5007556	2518	4992444	1·9969823	5785144	1·7285654	1·1552830	1344113	1457	[illegible]	[illegible]
4	5010074	2518	4989926	1·9959788	5789027	1·7274060	1·1554775	1345570	1457	[illegible]	[illegible]
5	5012591	2516	4987409	1·9949764	5792912	1·7262477	1·1556722	1347027	1459	[illegible]	[illegible]
6	5015107	2517	4984893	1·9939753	5796797	1·7250905	1·1558670	1348486	1459	[illegible]	[illegible]
7	5017624	2516	4982376	1·9929752	5800684	1·7239346	1·1560620	1349945	1460	[illegible]	[illegible]
8	5020140	2515	4979860	1·9919764	5804573	1·7227797	1·1562572	1351405	1460	[illegible]	[illegible]
9	5022655	2515	4977345	1·9909787	5808462	1·7216261	1·1564525	1352865	1461	[illegible]	[illegible]
10	5025170	2515	4974830	1·9899822	5812353	1·7204736	1·1566480	1354327	1462	[illegible]	[illegible]
11	5027685	2514	4972315	1·9889869	5816245	1·7193222	1·1568436	1355789	1463	[illegible]	[illegible]
12	5030199	2514	4969801	1·9879927	5820139	1·7181720	1·1570394	1357252	1464	[illegible]	[illegible]
13	5032713	2514	4967287	1·9869997	5824034	1·7170230	1·1572354	1358716	1464	[illegible]	[illegible]
14	5035227	2513	4964773	1·9860080	5827930	1·7158751	1·1574315	1360180	1465	[illegible]	[illegible]
15	5037740	2512	4962260	1·9850172	5831828	1·7147283	1·1576278	1361645	1466	[illegible]	[illegible]
16	5040252	2513	4959748	1·9840276	5835726	1·7135827	1·1578243	1363111	1466	[illegible]	[illegible]
17	5042765	2511	4957235	1·9830393	5839627	1·7124382	1·1580209	1364577	1467	[illegible]	[illegible]
18	5045276	2512	4954724	1·9820520	5843528	1·7112949	1·1582177	1366044	1468	[illegible]	[illegible]
19	5047788	2510	4952212	1·9810659	5847431	1·7101527	1·1584146	1367512	1469	[illegible]	[illegible]
20	5050298	2511	4949702	1·9800810	5851335	1·7090116	1·1586118	1368981	1470	[illegible]	[illegible]
21	5052809	2510	4947191	1·9790972	5855241	1·7078717	1·1588091	1370451	1470	[illegible]	[illegible]
22	5055319	2509	4944681	1·9781146	5859148	1·7067329	1·1590065	1371921	1471	[illegible]	[illegible]
23	5057828	2510	4942172	1·9771331	5863056	1·7055953	1·1592041	1373392	1471	[illegible]	[illegible]
24	5060338	2508	4939662	1·9761527	5866965	1·7044587	1·1594019	1374863	1473	[illegible]	[illegible]
25	5062846	2509	4937154	1·9751735	5870876	1·7033233	1·1595999	1376336	1473	[illegible]	[illegible]
26	5065355	2508	4934645	1·9741954	5874788	1·7021890	1·1597980	1377809	1474	[illegible]	[illegible]
27	5067863	2507	4932137	1·9732185	5878702	1·7010559	1·1599963	1379283	1474	[illegible]	[illegible]
28	5070370	2507	4929630	1·9722427	5882616	1·6999238	1·1601947	1380757	1475	[illegible]	[illegible]
29	5072877	2507	4927123	1·9712680	5886533	1·6987929	1·1603933	1382232	1476	[illegible]	[illegible]
30	5075384	2506	4924616	1·9702944	5890450	1·6976631	1·1605921	1383708	1477	[illegible]	[illegible]
31	5077890	2506	4922110	1·9693220	5894369	1·6965344	1·1607911	1385185	1478	[illegible]	[illegible]
32	5080396	2505	4919604	1·9683507	5898289	1·6954069	1·1609902	1386663	1478	[illegible]	[illegible]
33	5082901	2505	4917099	1·9673805	5902211	1·6942804	1·1611894	1388141	1479	[illegible]	[illegible]
34	5085406	2504	4914594	1·9664114	5906134	1·6931550	1·1613889	1389620	1479	[illegible]	[illegible]
35	5087910	2504	4912090	1·9654435	5910058	1·6920308	1·1615885	1391099	1481	[illegible]	[illegible]
36	5090414	2504	4909586	1·9644767	5913984	1·6909077	1·1617883	1392580	1481	[illegible]	[illegible]
37	5092918	2503	4907082	1·9635110	5917910	1·6897856	1·1619882	1394061	1482	[illegible]	[illegible]
38	5095421	2503	4904579	1·9625464	5921839	1·6886647	1·1621883	1395543	1482	[illegible]	[illegible]
39	5097924	2502	4902076	1·9615829	5925768	1·6875449	1·1623886	1397025	1484	[illegible]	[illegible]
40	5100426	2502	4899574	1·9606206	5929699	1·6864261	1·1625891	1398509	1484	[illegible]	[illegible]
41	5102928	2501	4897072	1·9596593	5933632	1·6853085	1·1627897	1399993	1484	[illegible]	[illegible]
42	5105429	2501	4894571	1·9586992	5937565	1·6841919	1·1629905	1401477	1486	[illegible]	[illegible]
43	5107930	2501	4892070	1·9577402	5941501	1·6830765	1·1631914	1402963	1486	[illegible]	[illegible]
44	5110431	2500	4889569	1·9567822	5945437	1·6819621	1·1633925	1404449	1487	[illegible]	[illegible]
45	5112931	2500	4887069	1·9558254	5949375	1·6808489	1·1635938	1405936	1488	[illegible]	[illegible]
46	5115431	2499	4884569	1·9548697	5953314	1·6797367	1·1637953	1407424	1488	[illegible]	[illegible]
47	5117930	2499	4882070	1·9539150	5957255	1·6786256	1·1639969	1408912	1489	[illegible]	[illegible]
48	5120429	2498	4879571	1·9529615	5961196	1·6775156	1·1641987	1410401	1490	[illegible]	[illegible]
49	5122927	2498	4877073	1·9520091	5965140	1·6764067	1·1644007	1411891	1490	[illegible]	[illegible]
50	5125425	2498	4874575	1·9510577	5969084	1·6752988	1·1646028	1413381	1492	[illegible]	[illegible]
51	5127923	2497	4872077	1·9501075	5973030	1·6741921	1·1648051	1414873	1492	[illegible]	[illegible]
52	5130420	2496	4869580	1·9491584	5976978	1·6730864	1·1650076	1416365	1492	[illegible]	[illegible]
53	5132916	2497	4867084	1·9482102	5980926	1·6719818	1·1652102	1417857	1494	[illegible]	[illegible]
54	5135413	2495	4864587	1·9472632	5984877	1·6708782	1·1654130	1419351	1494	[illegible]	[illegible]
55	5137908	2496	4862092	1·9463173	5988828	1·6697758	1·1656160	1420845	1495	[illegible]	[illegible]
56	5140404	2495	4859596	1·9453724	5992781	1·6686744	1·1658191	1422340	1496	[illegible]	[illegible]
57	5142899	2494	4857101	1·9444286	5996735	1·6675741	1·1660224	1423836	1496	[illegible]	[illegible]
58	5145393	2494	4854607	1·9434861	6000691	1·6664748	1·1662259	1425332	1497	[illegible]	[illegible]
59	5147887	2494	4852113	1·9425445	6004648	1·6653766	1·1664296	1426829	1498	[illegible]	[illegible]
60	5150381		4849619	1·9416040	6008606	1·6642795	1·1666334	1428327		[illegible]	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

Sine	Dif	Cosec	Versed.	Tang.	Dif.	Cotang	Covers.	Secant	D	Cosine	'
·6989700	2182	10·3010300	9·1270225	9·7614394	2917	10·2385606	9·6989700	10·0624694	729	9·9375306	60
·6991887	2186	10·3008113	9·1274938	9·7617311	2916	10·2382689	9·6987514	10·0625423	730	9·9374577	59
·6994073	2183	10·3005927	9·1279649	9·7620227	2915	10·2379773	9·6985327	10·0626153	731	9·9373847	58
·6996256	2183	10·3003744	9·1284356	9·7623142	2914	10·2376858	9·6983144	10·0626884	731	9·9373116	57
·6998441	2181	10·3001559	9·1289062	9·7626056	2913	10·2373944	9·6980942	10·0627615	732	9·9372385	56
·7000622	2180	10·2999374	9·1293764	9·7628969	2912	10·2371031	9·6978750	10·0628347	732	9·9371653	55
·7002802	2179	10·2997198	9·1298464	9·7631881	2911	10·2368119	9·6976558	10·0629079	732	9·9370921	54
·7004981	2177	10·2995019	9·1303161	9·7634792	2910	10·2365208	9·6974365	10·0629811	733	9·9370189	53
·7007158	2176	10·2992842	9·1307855	9·7637702	2910	10·2362298	9·6972172	10·0630544	734	9·9369456	52
·7009334	2174	10·2990666	9·1312547	9·7640612	2908	10·2359388	9·6969977	10·0631278	734	9·9368722	51
·7011508	2173	10·2988492	9·1317235	9·7643520	2907	10·2356480	9·6967782	10·0632012	734	9·9367988	50
·7013681	2171	10·2986319	9·1321921	9·7646427	2907	10·2353573	9·6965586	10·0632746	735	9·9367254	49
·7015852	2170	10·2984148	9·1326605	9·7649334	2905	10·2350666	9·6963390	10·0633481	736	9·9366519	48
·7018022	2168	10·2981978	9·1331286	9·7652239	2904	10·2347761	9·6961192	10·0634217	736	9·9365783	47
·7020190	2167	10·2979810	9·1335964	9·7655143	2904	10·2344857	9·6958994	10·0634953	736	9·9365047	46
·7022357	2166	10·2977643	9·1340639	9·7658047	2902	10·2341953	9·6956795	10·0635689	737	9·9364311	45
·7024523	2164	10·2975477	9·1345311	9·7660949	2902	10·2339051	9·6954596	10·0636426	738	9·9363574	44
·7026687	2162	10·2973313	9·1349981	9·7663851	2900	10·2336149	9·6952396	10·0637164	738	9·9362836	43
·7028849	2162	10·2971151	9·1354648	9·7666751	2900	10·2333249	9·6950194	10·0637902	739	9·9362098	42
·7031011	2159	10·2968989	9·1359313	9·7669651	2899	10·2330349	9·6947993	10·0638640	739	9·9361360	41
·7033170	2159	10·2966830	9·1363975	9·7672550	2898	10·2327450	9·6945790	10·0639379	740	9·9360621	40
·7035329	2157	10·2964671	9·1368634	9·7675448	2896	10·2324552	9·6943587	10·0640119	740	9·9359881	39
·7037486	2155	10·2962514	9·1373290	9·7678344	2896	10·2321656	9·6941383	10·0640859	740	9·9359141	38
·7039641	2154	10·2960359	9·1377944	9·7681240	2895	10·2318760	9·6939178	10·0641599	741	9·9358401	37
·7041795	2152	10·2958205	9·1382595	9·7684135	2894	10·2315865	9·6936973	10·0642340	742	9·9357660	36
·7043947	2152	10·2956053	9·1387244	9·7687029	2893	10·2312971	9·6934766	10·0643082	741	9·9356918	35
·7046099	2149	10·2953901	9·1391889	9·7689922	2892	10·2310078	9·6932559	10·0643823	743	9·9356177	34
·7048248	2149	10·2951752	9·1396532	9·7692814	2891	10·2307186	9·6930352	10·0644566	743	9·9355434	33
·7050397	2146	10·2949603	9·1401173	9·7695705	2891	10·2304295	9·6928143	10·0645309	743	9·9354691	32
·7052543	2146	10·2947457	9·1405811	9·7698596	2889	10·2301404	9·6925934	10·0646052	744	9·9353948	31
·7054689	2144	10·2945311	9·1410446	9·7701485	2888	10·2298515	9·6923724	10·0646796	745	9·9353204	30
·7056833	2142	10·2943167	9·1415078	9·7704373	2888	10·2295627	9·6921513	10·0647541	744	9·9352459	29
·7058975	2141	10·2941025	9·1419708	9·7707261	2886	10·2292739	9·6919302	10·0648285	746	9·9351715	28
·7061116	2140	10·2938884	9·1424335	9·7710147	2886	10·2289853	9·6917090	10·0649031	746	9·9350969	27
·7063256	2138	10·2936744	9·1428960	9·7713033	2884	10·2286967	9·6914877	10·0649777	746	9·9350223	26
·7065394	2137	10·2934606	9·1433581	9·7715917	2884	10·2284083	9·6912661	10·0650523	747	9·9349477	25
·7067531	2136	10·2932469	9·1438201	9·7718801	2883	10·2281199	9·6910449	10·0651270	747	9·9348730	24
·7069667	2134	10·2930333	9·1442817	9·7721684	2882	10·2278316	9·6908233	10·0652017	748	9·9347983	23
·7071801	2132	10·2928199	9·1447431	9·7724566	2881	10·2275434	9·6906017	10·0652765	749	9·9347235	22
·7073933	2131	10·2926067	9·1452042	9·7727447	2880	10·2272553	9·6903801	10·0653514	748	9·9346486	21
·7076064	2130	10·2923936	9·1456651	9·7730327	2879	10·2269673	9·6901583	10·0654262	750	9·9345738	20
·7078194	2129	10·2921806	9·1461257	9·7733206	2878	10·2266794	9·6899365	10·0655012	750	9·9344988	19
·7080323	2127	10·2919677	9·1465861	9·7736084	2877	10·2263916	9·6897146	10·0655762	750	9·9344238	18
·7082450	2125	10·2917550	9·1470461	9·7738961	2877	10·2261039	9·6894926	10·0656512	751	9·9343488	17
·7084575	2124	10·2915425	9·1475060	9·7741838	2875	10·2258162	9·6892706	10·0657263	751	9·9342737	16
·7086699	2123	10·2913301	9·1479655	9·7744713	2875	10·2255287	9·6890485	10·0658014	752	9·9341986	15
·7088822	2121	10·2911178	9·1484248	9·7747588	2874	10·2252412	9·6888263	10·0658766	752	9·9341234	14
·7090943	2120	10·2909057	9·1488838	9·7750462	2872	10·2249538	9·6886040	10·0659518	753	9·9340482	13
·7093063	2119	10·2906937	9·1493426	9·7753334	2872	10·2246666	9·6883817	10·0660271	753	9·9339729	12
·7095182	2117	10·2904818	9·1498011	9·7756206	2871	10·2243794	9·6881593	10·0661024	754	9·9338976	11
·7097299	2116	10·2902701	9·1502594	9·7759077	2870	10·2240923	9·6879368	10·0661778	755	9·9338222	10
·7099415	2114	10·2900585	9·1507174	9·7761947	2869	10·2238053	9·6877142	10·0662533	754	9·9337467	9
·7101529	2113	10·2898471	9·1511751	9·7764816	2869	10·2235184	9·6874915	10·0663287	756	9·9336713	8
·7103642	2111	10·2896358	9·1516326	9·7767685	2867	10·2232315	9·6872688	10·0664043	756	9·9335957	7
·7105753	2110	10·2894247	9·1520898	9·7770552	2866	10·2229448	9·6870460	10·0664799	756	9·9335201	6
·7107863	2109	10·2892137	9·1525467	9·7773418	2866	10·2226582	9·6868231	10·0665555	757	9·9334445	5
·7109972	2108	10·2890028	9·1530034	9·7776284	2865	10·2223716	9·6866002	10·0666312	757	9·9333688	4
·7112080	2106	10·2887920	9·1534599	9·7779149	2863	10·2220851	9·6863772	10·0667069	758	9·9332931	3
·7114186	2104	10·2885814	9·1539161	9·7782012	2863	10·2217988	9·6861541	10·0667827	758	9·9332173	2
·7116290	2103	10·2883710	9·1543720	9·7784875	2862	10·2215125	9·6859309	10·0668585	759	9·9331415	1
·7118393		10·2881607	9·1548276	9·7787737		10·2212263	9·6857076	10·0669344		9·9330656	0
Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Versed.	Cosec.	D.	Sine	'

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	'
0	5150381	2493	4849619	1·9416040	6008606	1·6642795	1·1666334	1428327	1499	[illegible]	60
1	5152874	2493	4847126	1·9406646	6012566	1·6631834	1·1668374	1429826	1499	[illegible]	59
2	5155367	2492	4844633	1·9397262	6016527	1·6620884	1·1670416	1431325	1500	[illegible]	58
3	5157859	2492	4842141	1·9387889	6020490	1·6609945	1·1672459	1432825	1501	[illegible]	57
4	5160351	2491	4839649	1·9378527	6024454	1·6599016	1·1674504	1434326	1501	[illegible]	56
5	5162842	2491	4837158	1·9369176	6028419	1·6588097	1·1676551	1435827	1502	[illegible]	55
6	5165333	2491	4834667	1·9359835	6032386	1·6577189	1·1678599	1437329	1503	[illegible]	54
7	5167824	2490	4832176	1·9350505	6036354	1·6566292	1·1680649	1438832	1504	8561168	53
8	5170314	2490	4829686	1·9341185	6040323	1·6555405	1·1682701	1440336	1504	[illegible]	52
9	5172804	2489	4827196	1·9331876	6044294	1·6544529	1·1684755	1441840	1505	[illegible]	51
10	5175293	2489	4824707	1·9322578	6048266	1·6533663	1·1686810	1443345	1506	[illegible]	50
11	5177782	2488	4822218	1·9313290	6052240	1·6522808	1·1688867	1444851	1506	[illegible]	49
12	5180270	2488	4819730	1·9304013	6056215	1·6511963	1·1690926	1446357	1506	[illegible]	48
13	5182758	2488	4817242	1·9294746	6060192	1·6501128	1·1692986	1447863	1508	[illegible]	47
14	5185246	2487	4814754	1·9285490	6064170	1·6490304	1·1695048	1449371	1508	[illegible]	46
15	5187733	2486	4812267	1·9276244	6068149	1·6479490	1·1697112	1450881	1510	[illegible]	45
16	5190219	2486	4809781	1·9267009	6072130	1·6468687	1·1699178	1452391	1510	[illegible]	44
17	5192705	2486	4807295	1·9257784	6076112	1·6457893	1·1701245	1453901	1511	[illegible]	43
18	5195191	2485	4804809	1·9248570	6080095	1·6447111	1·1703314	1455412	1511	[illegible]	42
19	5197676	2485	4802324	1·9239366	6084080	1·6436338	1·1705385	1456923	1513	[illegible]	41
20	5200161	2485	4799839	1·9230173	6088067	1·6425576	1·1707457	1458436	1513	[illegible]	40
21	5202646	2484	4797354	1·9220990	6092054	1·6414824	1·1709531	1459949	1513	[illegible]	39
22	5205130	2483	4794870	1·9211817	6096043	1·6404082	1·1711607	1461462	1515	[illegible]	38
23	5207613	2483	4792387	1·9202655	6100034	1·6393351	1·1713685	1462977	1515	[illegible]	37
24	5210096	2483	4789904	1·9193503	6104026	1·6382630	1·1715764	1464492	1516	[illegible]	36
25	5212579	2482	4787421	1·9184362	6108019	1·6371919	1·1717845	1466008	1517	[illegible]	35
26	5215061	2482	4784939	1·9175230	6112014	1·6361218	1·1719928	1467525	1517	[illegible]	34
27	5217543	2481	4782457	1·9166110	6116011	1·6350528	1·1722013	1469042	1518	[illegible]	33
28	5220024	2481	4779976	1·9156999	6120008	1·6339847	1·1724099	1470560	1518	[illegible]	32
29	5222505	2481	4777495	1·9147899	6124007	1·6329177	1·1726187	1472079	1519	[illegible]	31
30	5224986	2480	4775014	1·9138809	6128008	1·6318517	1·1728277	1473598	1521	[illegible]	30
31	5227466	2479	4772534	1·9129729	6132010	1·6307867	1·1730368	1475119	1521	[illegible]	29
32	5229945	2479	4770055	1·9120659	6136013	1·6297227	1·1732462	1476640	1521	[illegible]	28
33	5232424	2479	4767576	1·9111600	6140018	1·6286597	1·1734557	1478161	1523	[illegible]	27
34	5234903	2478	4765097	1·9102551	6144024	1·6275977	1·1736653	1479684	1523	[illegible]	26
35	5237381	2478	4762619	1·9093512	6148032	1·6265368	1·1738752	1481207	1524	[illegible]	25
36	5239859	2477	4760141	1·9084483	6152041	1·6254768	1·1740852	1482731	1524	[illegible]	24
37	5242336	2477	4757664	1·9075464	6156052	1·6244178	1·1742954	1484255	1526	[illegible]	23
38	5244813	2477	4755187	1·9066456	6160064	1·6233599	1·1745058	1485781	1526	8514219	22
39	5247290	2476	4752710	1·9057457	6164077	1·6223029	1·1747163	1487307	1526	[illegible]	21
40	5249766	2475	4750234	1·9048469	6168092	1·6212469	1·1749270	1488833	1528	[illegible]	20
41	5252241	2476	4747759	1·9039491	6172108	1·6201920	1·1751379	1490361	1528	8509679	19
42	5254717	2474	4745283	1·9030522	6176126	1·6191380	1·1753490	1491889	1529	[illegible]	18
43	5257191	2474	4742809	1·9021564	6180145	1·6180850	1·1755603	1493418	1529	[illegible]	17
44	5259665	2474	4740335	1·9012616	6184166	1·6170330	1·1757717	1494947	1531	[illegible]	16
45	5262139	2474	4737861	1·9003678	6188188	1·6159820	1·1759833	1496478	1531	[illegible]	15
46	5264613	2472	4735387	1·8994750	6192211	1·6149320	1·1761951	1498009	1532	[illegible]	14
47	5267085	2473	4732915	1·8985832	6196236	1·6138829	1·1764070	1499541	1532	[illegible]	13
48	5269558	2472	4730442	1·8976924	6200263	1·6128349	1·1766191	1501073	1533	[illegible]	12
49	5272030	2472	4727970	1·8968026	6204291	1·6117878	1·1768314	1502606	1534	[illegible]	11
50	5274502	2471	4725498	1·8959138	6208320	1·6107417	1·1770439	1504140	1535	[illegible]	10
51	5276973	2470	4723027	1·8950259	6212351	1·6096966	1·1772566	1505675	1535	[illegible]	9
52	5279443	2471	4720557	1·8941391	6216383	1·6086525	1·1774694	1507210	1536	[illegible]	8
53	5281914	2469	4718086	1·8932532	6220417	1·6076094	1·1776824	1508746	1537	[illegible]	7
54	5284383	2470	4715617	1·8923684	6224452	1·6065672	1·1778956	1510283	1538	[illegible]	6
55	5286853	2469	4713147	1·8914845	6228488	1·6055260	1·1781089	1511821	1538	[illegible]	5
56	5289322	2468	4710678	1·8906016	6232527	1·6044858	1·1783225	1513359	1539	[illegible]	4
57	5291790	2468	4708210	1·8897197	6236566	1·6034465	1·1785362	1514898	1540	[illegible]	3
58	5294258	2468	4705742	1·8888388	6240607	1·6024082	1·1787501	1516438	1540	[illegible]	2
59	5296726	2467	4703274	1·8879589	6244650	1·6013709	1·1789642	1517978	1541	[illegible]	1
60	5299193		4700807	1·8870799	6248694	1·6003345	1·1791784	1519519		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	'

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·7118393	2102	10·2881607	9·1548276	9·7787737	2862	10·2212263	9·6857076	10·0669344	759	9·9330656	60
1	9·7120495	2101	10·2879505	9·1552831	9·7790599	2860	10·2209401	9·6854843	10·0670103	760	9·9329897	59
2	9·7122596	2099	10·2877404	9·1557382	9·7793459	2859	10·2206541	9·6852609	10·0670863	761	9·9329137	58
3	9·7124695	2097	10·2875305	9·1561931	9·7796318	2859	10·2203682	9·6850374	10·0671624	760	9·9328376	57
4	9·7126792	2097	10·2873208	9·1566477	9·7799177	2857	10·2200823	9·6848139	10·0672384	762	9·9327616	56
5	9·7128889	2094	10·2871111	9·1571021	9·7802034	2857	10·2197966	9·6845902	10·0673146	762	9·9326854	55
6	9·7130983	2094	10·2869017	9·1575562	9·7804891	2856	10·2195109	9·6843665	10·0673908	762	9·9326092	54
7	9·7133077	2092	10·2866923	9·1580101	9·7807747	2855	10·2192253	9·6841428	10·0674670	763	9·9325330	53
8	9·7135169	2091	10·2864831	9·1584637	9·7810602	2854	10·2189398	9·6839189	10·0675433	763	9·9324567	52
9	9·7137260	2089	10·2862740	9·1589171	9·7813456	2853	10·2186544	9·6836950	10·0676196	764	9·9323804	51
10	9·7139349	2088	10·2860651	9·1593702	9·7816309	2853	10·2183691	9·6834710	10·0676960	764	9·9323040	50
11	9·7141437	2087	10·2858563	9·1598230	9·7819162	2851	10·2180838	9·6832469	10·0677724	765	9·9322276	49
12	9·7143524	2085	10·2856476	9·1602756	9·7822013	2851	10·2177987	9·6830227	10·0678489	765	9·9321511	48
13	9·7145609	2084	10·2854391	9·1607280	9·7824864	2849	10·2175136	9·6827985	10·0679254	766	9·9320746	47
14	9·7147693	2083	10·2852307	9·1611800	9·7827713	2849	10·2172287	9·6825741	10·0680020	767	9·9319980	46
15	9·7149776	2081	10·2850224	9·1616319	9·7830562	2848	10·2169438	9·6823498	10·0680787	766	9·9319213	45
16	9·7151857	2080	10·2848143	9·1620835	9·7833410	2848	10·2166590	9·6821253	10·0681553	768	9·9318447	44
17	9·7153937	2078	10·2846063	9·1625348	9·7836258	2846	10·2163742	9·6819007	10·0682321	768	9·9317679	43
18	9·7156015	2077	10·2843985	9·1629859	9·7839104	2845	10·2160896	9·6816761	10·0683089	768	9·9316911	42
19	9·7158092	2076	10·2841908	9·1634367	9·7841949	2845	10·2158051	9·6814514	10·0683857	769	9·9316143	41
20	9·7160168	2075	10·2839832	9·1638873	9·7844794	2844	10·2155206	9·6812266	10·0684626	769	9·9315374	40
21	9·7162243	2073	10·2837757	9·1643376	9·7847638	2843	10·2152362	9·6810018	10·0685395	770	9·9314605	39
22	9·7164316	2071	10·2835684	9·1647876	9·7850481	2842	10·2149519	9·6807769	10·0686165	770	9·9313835	38
23	9·7166387	2071	10·2833613	9·1652374	9·7853323	2841	10·2146677	9·6805519	10·0686935	771	9·9313065	37
24	9·7168458	2068	10·2831542	9·1656870	9·7856164	2840	10·2143836	9·6803268	10·0687706	772	9·9312294	36
25	9·7170526	2068	10·2829474	9·1661363	9·7859004	2840	10·2140996	9·6801016	10·0688478	772	9·9311522	35
26	9·7172594	2066	10·2827406	9·1665854	9·7861844	2838	10·2138156	9·6798764	10·0689250	772	9·9310750	34
27	9·7174660	2065	10·2825340	9·1670342	9·7864682	2838	10·2135318	9·6796511	10·0690022	773	9·9309978	33
28	9·7176725	2064	10·2823275	9·1674828	9·7867520	2837	10·2132480	9·6794257	10·0690795	773	9·9309205	32
29	9·7178789	2062	10·2821211	9·1679311	9·7870357	2836	10·2129643	9·6792002	10·0691568	774	9·9308432	31
30	9·7180851	2061	10·2819149	9·1683791	9·7873193	2835	10·2126807	9·6789747	10·0692342	775	9·9307658	30
31	9·7182912	2059	10·2817088	9·1688269	9·7876028	2835	10·2123972	9·6787491	10·0693117	774	9·9306883	29
32	9·7184971	2059	10·2815029	9·1692745	9·7878863	2833	10·2121137	9·6785234	10·0693891	776	9·9306109	28
33	9·7187030	2056	10·2812970	9·1697218	9·7881696	2833	10·2118304	9·6782976	10·0694667	776	9·9305333	27
34	9·7189086	2056	10·2810914	9·1701689	9·7884529	2832	10·2115471	9·6780717	10·0695443	776	9·9304557	26
35	9·7191142	2054	10·2808858	9·1706157	9·7887361	2831	10·2112639	9·6778458	10·0696219	777	9·9303781	25
36	9·7193196	2053	10·2806804	9·1710623	9·7890192	2831	10·2109808	9·6776198	10·0696996	778	9·9303004	24
37	9·7195249	2051	10·2804751	9·1715086	9·7893023	2829	10·2106977	9·6773937	10·0697774	778	9·9302226	23
38	9·7197300	2050	10·2802700	9·1719547	9·7895852	2829	10·2104148	9·6771676	10·0698552	778	9·9301448	22
39	9·7199350	2049	10·2800650	9·1724005	9·7898681	2827	10·2101319	9·6769413	10·0699330	779	9·9300670	21
40	9·7201399	2048	10·2798601	9·1728461	9·7901508	2827	10·2098492	9·6767150	10·0700109	779	9·9299891	20
41	9·7203447	2046	10·2796553	9·1732914	9·7904335	2826	10·2095665	9·6764886	10·0700888	780	9·9299112	19
42	9·7205493	2045	10·2794507	9·1737365	9·7907161	2826	10·2092839	9·6762622	10·0701668	781	9·9298332	18
43	9·7207538	2043	10·2792462	9·1741813	9·7909987	2824	10·2090013	9·6760356	10·0702449	781	9·9297551	17
44	9·7209581	2042	10·2790419	9·1746259	9·7912811	2824	10·2087189	9·6758090	10·0703230	781	9·9296770	16
45	9·7211623	2041	10·2788377	9·1750703	9·7915635	2823	10·2084365	9·6755823	10·0704011	782	9·9295989	15
46	9·7213664	2040	10·2786336	9·1755144	9·7918458	2822	10·2081542	9·6753555	10·0704793	783	9·9295207	14
47	9·7215704	2038	10·2784296	9·1759582	9·7921280	2821	10·2078720	9·6751287	10·0705576	783	9·9294424	13
48	9·7217742	2037	10·2782258	9·1764018	9·7924101	2820	10·2075899	9·6749017	10·0706359	784	9·9293641	12
49	9·7219779	2035	10·2780221	9·1768452	9·7926921	2820	10·2073079	9·6746747	10·0707143	784	9·9292857	11
50	9·7221814	2034	10·2778186	9·1772883	9·7929741	2819	10·2070259	9·6744476	10·0707927	784	9·9292073	10
51	9·7223848	2033	10·2776152	9·1777312	9·7932560	2818	10·2067440	9·6742205	10·0708711	785	9·9291289	9
52	9·7225881	2032	10·2774119	9·1781738	9·7935378	2817	10·2064622	9·6739932	10·0709496	786	9·9290504	8
53	9·7227913	2030	10·2772087	9·1786162	9·7938195	2816	10·2061805	9·6737659	10·0710282	786	9·9289718	7
54	9·7229943	2029	10·2770057	9·1790584	9·7941011	2816	10·2058989	9·6735385	10·0711068	787	9·9288932	6
55	9·7231972	2028	10·2768028	9·1795003	9·7943827	2814	10·2056173	9·6733110	10·0711855	787	9·9288145	5
56	9·7234000	2026	10·2766000	9·1799419	9·7946641	2814	10·2053359	9·6730835	10·0712642	787	9·9287358	4
57	9·7236026	2025	10·2763974	9·1803833	9·7949455	2813	10·2050545	9·6728558	10·0713429	788	9·9286571	3
58	9·7238051	2024	10·2761949	9·1808245	9·7952268	2813	10·2047732	9·6726281	10·0714217	789	9·9285783	2
59	9·7240075	2022	10·2759925	9·1812655	9·7955081	2811	10·2044919	9·6724003	10·0715006	789	9·9284994	1
60	9·7242097		10·2757903	9·1817061	9·7957892		10·2042108	9·6721725	10·0715795		9·9284205	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1·17[illegible]974	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1·5972512	1·1798[illegible]2	1524147	[illegible]	[illegible]	[illegible]
4	[illegible]	2464	[illegible]	[illegible]	[illegible]	1·59[illegible]1267	[illegible]	[illegible]	1544	[illegible]	[illegible]
5	5311521	[illegible]	[illegible]	[illegible]	[illegible]	1·5951074	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	5313986	2464	4686014	1·8818266	6272[illegible]	1·5941366	1·1804676	1528781	1546	8471219	54
7	5316450	2463	4683550	1·8809545	6277042	1·5931070	1·1806831	1530327	1547	[illegible]	53
8	5318913	2463	4681087	1·8800[illegible]3	6281098	1·5920783	1·180898[illegible]	1531874	1547	[illegible]	52
9	5321376	2463	4678624	1·8792131	6285155	1·5910505	1·1811146	1533421	1549	8462[illegible]	51
10	5323839	2462	4676161	1·8783438	6289214	1·5900[illegible]	1·1813307	1534970	1549	[illegible]	50
11	5326301	2462	4673699	1·8774755	6293274	1·5889979	1·1815469	1536519	1549	8457[illegible]	49
12	5328763	2461	4671237	1·8766082	6297336	1·5879731	1·1817635	15[illegible]068	1551	8451[illegible]	48
13	5331224	2461	4668776	1·8757419	6301399	1·5869491	1·181[illegible]79[illegible]	1539619	1551	[illegible]	47
14	5333685	2460	4666315	1·8748764	6305464	1·5859261	1·1821966	154117[illegible]	1552	[illegible]	46
15	5336145	2460	4663855	1·8740120	6309530	1·5849041	1·1824135	1542722	1552	845727[illegible]	45
16	5338605	2460	4661395	1·8731485	6313598	1·5838830	1·1826306	1544274	1554	845572[illegible]	44
17	5341065	2458	4658935	1·8722859	6317667	1·5828628	1·1828479	1545828	1554	845417[illegible]	43
18	5343523	2459	4656477	1·8714244	6321738	1·5818436	1·1830654	1547382	1554	845261[illegible]	42
19	5345982	2458	4654018	1·8705637	6325810	1·5808253	1·1832830	1548936	1556	845106[illegible]	41
20	5348440	2458	4651560	1·8699040	6329883	1·5798079	1·1835008	1550492	1556	844950[illegible]	40
21	5350898	2457	4649102	1·8688453	6333959	1·5787915	1·1837188	1552048	1557	8447952	39
22	5353355	2457	4646645	1·8679875	6338035	1·5777760	1·1839370	1553605	1557	8446395	38
23	5355812	2456	4644188	1·8671306	6342113	1·5767615	1·1841554	1555162	1559	8444838	37
24	5358268	2456	4641732	1·8662747	6346193	1·5757479	1·1843739	1556721	1559	8443279	36
25	5360724	2455	4639276	1·8654197	6350274	1·5747352	1·1845927	1558280	1559	8441720	35
26	5363179	2455	4636821	1·8645657	6354357	1·5737234	1·1848116	1559839	1561	8440161	34
27	5365634	2455	4634366	1·8637126	6358441	1·5727126	1·1850307	1561400	1561	8438600	33
28	5368089	2454	4631911	1·8628605	6362527	1·5717026	1·1852500	1562961	1562	8437039	32
29	5370543	2453	4629457	1·8620093	6366614	1·5706936	1·1854694	1564523	1563	8435477	31
30	5372996	2453	4627004	1·8611590	6370703	1·5696856	1·1856890	1566086	1563	8433914	30
31	5375449	2453	4624551	1·8603097	6374793	1·5686784	1·1859089	1567649	1564	8432351	29
32	5377902	2452	4622098	1·8594612	6378885	1·56767[illegible]2	1·1861289	1569213	1565	8430787	28
33	5380354	2452	4619646	1·8586138	6382978	1·5666669	1·1863490	1570778	1565	8429222	27
34	5382806	2451	4617194	1·8577672	6387073	1·5656625	1·1865694	1572343	1566	8427657	26
35	5385257	2451	4614743	1·8569216	6391169	1·5646590	1·1867900	1573909	1567	8426091	25
36	5387708	2450	4612292	1·8560769	6395267	1·5636564	1·1870107	1575476	1568	8424524	24
37	5390158	2450	4609842	1·8552331	6399366	1·5626548	1·1872316	1577044	1568	8422956	23
38	5392608	2450	4607392	1·8543903	6403467	1·5616540	1·1874527	1578612	1569	8421388	22
39	5395058	2449	4604942	1·8535483	6407569	1·5606542	1·1876740	1580181	1570	8419819	21
40	5397507	2448	4602493	1·8527074	6411673	1·5596552	1·1878954	1581751	1570	8418249	20
41	5399955	2448	4600045	1·8518672	6415779	1·5586572	1·1881171	1583321	1571	8416679	19
42	5402403	2448	4597597	1·8510281	6419886	1·5576601	1·1883389	1584892	1572	8415108	18
43	5404851	2447	4595149	1·8501898	6423994	1·5566639	1·1885609	1586464	1573	8413536	17
44	5407298	2447	4592702	1·8493525	6428105	1·5556685	1·1887831	1588037	1573	8411963	16
45	5409745	2446	4590255	1·848516[illegible]	6432216	1·5546741	1·1890055	1589610	1574	841039[illegible]	[illegible]
46	5412191	2446	4587809	1·8476806	6436329	1·5536806	1·1892280	1591184	1575	8408816	14
47	5414637	2445	4585363	1·8468460	6440444	1·5526880	1·1894508	1592759	1575	8407241	13
48	5417082	2445	4582918	1·8460123	6444560	1·5516963	1·1896737	1594334	1576	8405666	12
49	5419527	2444	4580473	1·8451795	6448678	1·5507054	1·1898968	1595910	1577	8404090	11
50	5421971	2444	4578029	1·8443476	6452797	1·5497155	1·1901201	1597487	1577	8402513	10
51	5424415	2444	4575585	1·8435166	6456918	1·5487264	1·1903436	1599064	1579	8400936	9
52	5426859	2443	4573141	1·8426866	6461041	1·5477383	1·1905673	1600643	1579	8399357	8
53	5429302	2442	4570698	1·8418574	6465165	1·5467510	1·1907911	1602222	1579	8397778	7
54	5431744	2443	4568256	1·8410292	6469290	1·5457647	1·1910152	1603801	1581	8396199	6
55	5434187	2441	4565813	1·8402018	6473417	1·5447792	1·1912394	1605382	1581	8394618	5
56	5436628	2441	4563372	1·8393753	6477546	1·5437946	1·1914638	1606963	1582	8393037	4
57	5439069	2441	4560931	1·8385498	6481676	1·5428108	1·1916884	1608545	1582	8391455	3
58	5441510	2441	4558490	1·8377251	6485808	1·5418280	1·1919132	1610127	1583	8389873	2
59	5443951	2439	4556049	1·8369013	6489941	1·5408460	1·1921381	1611710	1584	8388290	1
60	5446390		4553610	1·8360785	6494076	1·5398650	1·1923633	1613294		8386706	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·7242097	2021	10·2757903	9·1817061	9·7957892	2811	10·2042108	9·6721725	10·0715795	790	9·9284205	60
1	9·7244118	2020	10·2755882	9·1821466	9·7960703	2810	10·2039297	9·6719445	10·0716585	790	9·9283415	59
2	9·7246138	2018	10·2753862	9·1825868	9·7963513	2809	10·2036487	9·6717165	10·0717375	791	9·9282625	58
3	9·7248156	2018	10·2751844	9·1830268	9·7966322	2808	10·2033678	9·6714884	10·0718166	791	9·9281834	57
4	9·7250174	2015	10·2749826	9·1834665	9·7969130	2808	10·2030870	9·6712602	10·0718957	792	9·9281043	56
5	9·7252189	2015	10·2747811	9·1839060	9·7971938	2807	10·2028062	9·6710319	10·0719749	792	9·9280251	55
6	9·7254204	2013	10·2745796	9·1843452	9·7974745	2806	10·2025255	9·6708036	10·0720541	793	9·9279459	54
7	9·7256217	2012	10·2743783	9·1847842	9·7977551	2805	10·2022449	9·6705752	10·0721334	793	9·9278666	53
8	9·7258229	2011	10·2741771	9·1852230	9·7980356	2804	10·2019644	9·6703467	10·0722127	794	9·9277873	52
9	9·7260240	2009	10·2739760	9·1856615	9·7983160	2804	10·2016840	9·6701181	10·0722921	794	9·9277079	51
10	9·7262249	2008	10·2737751	9·1860998	9·7985964	2803	10·2014036	9·6698895	10·0723715	795	9·9276285	50
11	9·7264257	2007	10·2735743	9·1865378	9·7988767	2802	10·2011233	9·6696607	10·0724510	795	9·9275490	49
12	9·7266264	2005	10·2733736	9·1869756	9·7991569	2801	10·2008431	9·6694319	10·0725305	796	9·9274695	48
13	9·7268269	2004	10·2731731	9·1874132	9·7994370	2800	10·2005630	9·6692030	10·0726101	796	9·9273899	47
14	9·7270273	2003	10·2729727	9·1878505	9·7997170	2800	10·2002830	9·6689741	10·0726897	797	9·9273103	46
15	9·7272276	2002	10·2727724	9·1882876	9·7999970	2799	10·2000030	9·6687450	10·0727694	797	9·9272306	45
16	9·7274278	2000	10·2725722	9·1887245	9·8002769	2798	10·1997231	9·6685159	10·0728491	798	9·9271509	44
17	9·7276278	1999	10·2723722	9·1891611	9·8005567	2798	10·1994433	9·6682867	10·0729289	798	9·9270711	43
18	9·7278277	1998	10·2721723	9·1895974	9·8008365	2796	10·1991635	9·6680574	10·0730087	799	9·9269913	42
19	9·7280275	1996	10·2719725	9·1900336	9·8011161	2796	10·1988839	9·6678281	10·0730886	800	9·9269114	41
20	9·7282271	1996	10·2717729	9·1904695	9·8013957	2795	10·1986043	9·6675986	10·0731686	800	9·9268314	40
21	9·7284267	1993	10·2715733	9·1909051	9·8016752	2794	10·1983248	9·6673691	10·0732486	800	9·9267514	39
22	9·7286260	1993	10·2713740	9·1913406	9·8019546	2794	10·1980454	9·6671395	10·0733286	801	9·9266714	38
23	9·7288253	1991	10·2711747	9·1917758	9·8022340	2793	10·1977660	9·6669098	10·0734087	801	9·9265913	37
24	9·7290244	1990	10·2709756	9·1922107	9·8025133	2792	10·1974867	9·6666801	10·0734888	802	9·9265112	36
25	9·7292234	1989	10·2707766	9·1926454	9·8027925	2791	10·1972075	9·6664502	10·0735690	803	9·9264310	35
26	9·7294223	1988	10·2705777	9·1930799	9·8030716	2790	10·1969284	9·6662203	10·0736493	803	9·9263507	34
27	9·7296211	1986	10·2703789	9·1935142	9·8033506	2790	10·1966494	9·6659903	10·0737296	803	9·9262704	33
28	9·7298197	1985	10·2701803	9·1939482	9·8036296	2789	10·1963704	9·6657603	10·0738099	805	9·9261901	32
29	9·7300182	1983	10·2699818	9·1943819	9·8039085	2788	10·1960915	9·6655301	10·0738904	804	9·9261096	31
30	9·7302165	1983	10·2697835	9·1948155	9·8041873	2788	10·1958127	9·6652999	10·0739708	805	9·9260292	30
31	9·7304148	1981	10·2695852	9·1952488	9·8044661	2786	10·1955339	9·6650696	10·0740513	806	9·9259487	29
32	9·7306129	1980	10·2693871	9·1956819	9·8047447	2786	10·1952553	9·6648392	10·0741319	806	9·9258681	28
33	9·7308109	1978	10·2691891	9·1961147	9·8050233	2786	10·1949767	9·6646087	10·0742125	806	9·9257875	27
34	9·7310087	1977	10·2689913	9·1965473	9·8053019	2784	10·1946981	9·6643781	10·0742931	808	9·9257069	26
35	9·7312064	1976	10·2687936	9·1969797	9·8055803	2784	10·1944197	9·6641475	10·0743739	807	9·9256261	25
36	9·7314040	1975	10·2685960	9·1974118	9·8058587	2783	10·1941413	9·6639168	10·0744546	808	9·9255454	24
37	9·7316015	1974	10·2683985	9·1978437	9·8061370	2782	10·1938630	9·6636860	10·0745354	809	9·9254646	23
38	9·7317989	1972	10·2682011	9·1982754	9·8064152	2781	10·1935848	9·6634552	10·0746163	809	9·9253837	22
39	9·7319961	1971	10·2680039	9·1987068	9·8066933	2781	10·1933067	9·6632242	10·0746972	810	9·9253028	21
40	9·7321932	1970	10·2678068	9·1991380	9·8069714	2780	10·1930286	9·6629932	10·0747782	810	9·9252218	20
41	9·7323902	1968	10·2676098	9·1995690	9·8072494	2779	10·1927506	9·6627621	10·0748592	811	9·9251408	19
42	9·7325870	1967	10·2674130	9·1999997	9·8075273	2779	10·1924727	9·6625309	10·0749403	811	9·9250597	18
43	9·7327837	1966	10·2672163	9·2004302	9·8078052	2777	10·1921948	9·6622996	10·0750214	812	9·9249786	17
44	9·7329803	1965	10·2670197	9·2008605	9·8080829	2777	10·1919171	9·6620683	10·0751026	813	9·9248974	16
45	9·7331768	1963	10·2668232	9·2012906	9·8083606	2777	10·1916394	9·6618368	10·0751839	812	9·9248161	15
46	9·7333731	1962	10·2666269	9·2017204	9·8086383	2775	10·1913617	9·6616053	10·0752651	814	9·9247349	14
47	9·7335693	1961	10·2664307	9·2021499	9·8089158	2775	10·1910842	9·6613737	10·0753465	814	9·9246535	13
48	9·7337654	1960	10·2662346	9·2025793	9·8091933	2774	10·1908067	9·6611421	10·0754279	814	9·9245721	12
49	9·7339614	1958	10·2660386	9·2030084	9·8094707	2773	10·1905293	9·6609103	10·0755093	815	9·9244907	11
50	9·7341572	1957	10·2658428	9·2034373	9·8097480	2773	10·1902520	9·6606785	10·0755908	815	9·9244092	10
51	9·7343529	1956	10·2656471	9·2038660	9·8100253	2772	10·1899747	9·6604466	10·0756723	816	9·9243277	9
52	9·7345485	1955	10·2654515	9·2042944	9·8103025	2771	10·1896975	9·6602146	10·0757539	817	9·9242461	8
53	9·7347440	1953	10·2652560	9·2047226	9·8105796	2770	10·1894204	9·6599825	10·0758356	817	9·9241644	7
54	9·7349393	1952	10·2650607	9·2051506	9·8108566	2770	10·1891434	9·6597504	10·0759173	817	9·9240827	6
55	9·7351345	1951	10·2648655	9·2055783	9·8111336	2769	10·1888664	9·6595182	10·0759990	819	9·9240010	5
56	9·7353296	1950	10·2646704	9·2060058	9·8114105	2768	10·1885895	9·6592858	10·0760809	818	9·9239191	4
57	9·7355246	1949	10·2644754	9·2064331	9·8116873	2768	10·1883127	9·6590535	10·0761627	819	9·9238373	3
58	9·7357195	1947	10·2642805	9·2068602	9·8119641	2767	10·1880359	9·6588210	10·0762446	820	9·9237554	2
59	9·7359142	1946	10·2640858	9·2072870	9·8122408	2766	10·1877592	9·6585884	10·0763266	820	9·9236734	1
60	9·7361088		10·2638912	9·2077136	9·8125174		10·1874826	9·6583558	10·0764086		9·9235914	0
′	Cosine	Dif.	Secant	Covers.	Cotang	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif	Cosine	′
0	5446390	2440	4553610	1·8360785	6494076	1·5398650	1·1923633	1613294	1585	8386706	60
1	5448830	2439	4551170	1·8352565	6498212	1·5388848	1·1925886	1614879	1586	[illegible]	59
2	5451269	2438	4548731	1·8344354	6502350	1·5379054	1·1928142	1616464	1586	[illegible]	58
3	5453707	2438	4546293	1·8336152	6506490	1·5369270	1·1930399	1618050	1587	8381950	57
4	5456145	2438	4543855	1·8327959	6510631	1·5359494	1·1932658	1619637	1588	[illegible]	56
5	5458583	2437	4541417	1·8319774	6514774	1·5349727	1·1934918	1621225	1588	[illegible]	55
6	5461020	2436	4538980	1·8311599	6518918	1·5339969	1·1937181	1622813	1589	[illegible]	54
7	5463456	2436	4536544	1·8303432	6523064	1·5330219	1·1939446	1624402	1589	[illegible]	53
8	5465892	2436	4534108	1·8295274	6527211	1·5320479	1·1941712	1625991	1591	[illegible]	52
9	5468328	2435	4531672	1·8287125	6531360	1·5310746	1·1943980	1627582	1591	[illegible]	51
10	5470763	2435	4529237	1·8278985	6535511	1·5301023	1·1946251	1629173	1591	[illegible]	50
11	5473198	2434	4526802	1·8270854	6539663	1·5291308	1·1948523	1630764	1593	[illegible]	49
12	5475632	2434	4524368	1·8262731	6543817	1·5281602	1·1950796	1632357	1593	[illegible]	48
13	5478066	2433	4521934	1·8254617	6547972	1·5271904	1·1953072	1633950	1594	[illegible]	47
14	5480499	2433	4519501	1·8246512	6552129	1·5262215	1·1955350	1635544	1594	[illegible]	46
15	5482932	2433	4517068	1·8238416	6556287	1·5252535	1·1957629	1637138	1596	[illegible]	45
16	5485365	2432	4514635	1·8230328	6560447	1·5242863	1·1959911	1638744	1596	[illegible]	44
17	5487797	2431	4512203	1·8222249	6564609	1·5233200	1·1962194	1640330	1596	[illegible]	43
18	5490228	2431	4509772	1·8214179	6568772	1·5223545	1·1964479	1641926	1598	[illegible]	42
19	5492659	2431	4507341	1·8206118	6572937	1·5213899	1·1966767	1643524	1598	[illegible]	41
20	5495090	2430	4504910	1·8198065	6577103	1·5204261	1·1969056	1645122	1599	[illegible]	40
21	5497520	2430	4502480	1·8190021	6581271	1·5194632	1·1971346	1646721	1599	[illegible]	39
22	5499950	2429	4500050	1·8181985	6585441	1·5185012	1·1973639	1648320	1600	[illegible]	38
23	5502379	2428	4497621	1·8173958	6589612	1·5175400	1·1975934	1649920	1601	[illegible]	37
24	5504807	2429	4495193	1·8165940	6593785	1·5165796	1·1978230	1651521	1602	[illegible]	36
25	5507236	2427	4492764	1·8157930	6597960	1·5156201	1·1980529	1653123	1602	[illegible]	35
26	5509663	2428	4490337	1·8149929	6602136	1·5146614	1·1982829	1654725	1603	[illegible]	34
27	5512091	2427	4487909	1·8141937	6606313	1·5137036	1·1985131	1656328	1604	[illegible]	33
28	5514518	2426	4485482	1·8133953	6610492	1·5127466	1·1987435	1657932	1605	[illegible]	32
29	5516944	2426	4483056	1·8125977	6614673	1·5117905	1·1989741	1659537	1605	[illegible]	31
30	5519370	2425	4480630	1·8118010	6618856	1·5108352	1·1992049	1661142	1606	[illegible]	30
31	5521795	2425	4478205	1·8110052	6623040	1·5098807	1·1994359	1662748	1606	[illegible]	29
32	5524220	2425	4475780	1·8102102	6627225	1·5089271	1·1996671	1664354	1608	[illegible]	28
33	5526645	2424	4473355	1·8094161	6631413	1·5079743	1·1998985	1665962	1608	[illegible]	27
34	5529069	2423	4470931	1·8086228	6635601	1·5070224	1·2001300	1667570	1608	[illegible]	26
35	5531492	2423	4468508	1·8078304	6639792	1·5060713	1·2003618	1669178	1610	[illegible]	25
36	5533915	2423	4466085	1·8070388	6643984	1·5051210	1·2005937	1670788	1610	[illegible]	24
37	5536338	2422	4463662	1·8062481	6648178	1·5041716	1·2008258	1672398	1611	[illegible]	23
38	5538760	2422	4461240	1·8054582	6652373	1·5032229	1·2010582	1674009	1611	[illegible]	22
39	5541182	2421	4458818	1·8046691	6656570	1·5022751	1·2012907	1675620	1612	[illegible]	21
40	5543603	2421	4456397	1·8038809	6660769	1·5013282	1·2015234	1677232	1613	[illegible]	20
41	5546024	2420	4453976	1·8030935	6664969	1·5003821	1·2017563	1678845	1614	[illegible]	19
42	5548444	2420	4451556	1·8023070	6669171	1·4994367	1·2019894	1680459	1614	8319541	18
43	5550864	2419	4449136	1·8015213	6673374	1·4984923	1·2022226	1682073	1615	[illegible]	17
44	5553283	2419	4446717	1·8007362	6677580	1·4975486	1·2024561	1683688	1616	[illegible]	16
45	5555702	2419	4444298	1·7999524	6681786	1·4966058	1·2026898	1685304	1616	[illegible]	15
46	5558121	2418	4441879	1·7991693	6685995	1·4956637	1·2029236	1686920	1617	[illegible]	14
47	5560539	2417	4439461	1·7983869	6690205	1·4947225	1·2031577	1688537	1618	[illegible]	13
48	5562956	2417	4437044	1·7976054	6694417	1·4937822	1·2033919	1690155	1619	[illegible]	12
49	5565373	2417	4434627	1·7968247	6698630	1·4928426	1·2036264	1691774	1619	[illegible]	11
50	5567790	2416	4432210	1·7960449	6702845	1·4919039	1·2038610	1693393	1620	[illegible]	10
51	5570206	2415	4429794	1·7952658	6707061	1·4909659	1·2040958	1695013	1621	[illegible]	9
52	5572621	2415	4427379	1·7944876	6711280	1·4900288	1·2043308	1696634	1621	[illegible]	8
53	5575036	2415	4424964	1·7937102	6715500	1·4890925	1·2045660	1698255	1622	[illegible]	7
54	5577451	2414	4422549	1·7929337	6719721	1·4881570	1·2048014	1699877	1623	[illegible]	6
55	5579865	2414	4420135	1·7921580	6723944	1·4872223	1·2050370	1701500	1624	[illegible]	5
56	5582279	2413	4417721	1·7913831	6728169	1·4862884	1·2052728	1703123	1622	[illegible]	4
57	5584692	2413	4415308	1·7906090	6732396	1·4853554	1·2055088	1704748	1624	[illegible]	3
58	5587105	2412	4412895	1·7898357	6736624	1·4844231	1·2057450	1706372	1625	[illegible]	2
59	5589517	2412	4410483	1·7890633	6740854	1·4834916	1·2059814	1707998	1626	[illegible]	1
60	5591929		4408071	1·7882916	6745085	1·4825610	1·2062179	1709624		[illegible]	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·7361088	1944	10·2638912	9·2077136	9·8125174	2765	10·1874826	9·6583558	10·0764086	821	9·9235914	60
1	9·7363032	1944	10·2636968	9·2081400	9·8127939	2765	10·1872061	9·6581231	10·0764907	821	9·9235093	59
2	9·7364976	1942	10·2635024	9·2085661	9·8130704	2764	10·1869296	9·6578903	10·0765728	822	9·9234272	58
3	9·7366918	1941	10·2633082	9·2089920	9·8133468	2763	10·1866532	9·6576574	10·0766550	822	9·9233450	57
4	9·7368859	1940	10·2631141	9·2094177	9·8136231	2762	10·1863769	9·6574245	10·0767372	823	9·9232628	56
5	9·7370799	1938	10·2629201	9·2098432	9·8138993	2762	10·1861007	9·6571914	10·0768195	823	9·9231805	55
6	9·7372737	1938	10·2627263	9·2102684	9·8141755	2761	10·1858245	9·6569583	10·0769018	824	9·9230982	54
7	9·7374675	1936	10·2625325	9·2106934	9·8144516	2761	10·1855484	9·6567251	10·0769842	824	9·9230158	53
8	9·7376611	1935	10·2623389	9·2111182	9·8147277	2759	10·1852723	9·6564918	10·0770666	825	9·9229334	52
9	9·7378546	1933	10·2621454	9·2115428	9·8150036	2759	10·1849964	9·6562585	10·0771491	825	9·9228509	51
10	9·7380479	1933	10·2619521	9·2119671	9·8152795	2759	10·1847205	9·6560250	10·0772316	826	9·9227684	50
11	9·7382412	1931	10·2617588	9·2123912	9·8155554	2757	10·1844446	9·6557915	10·0773142	826	9·9226858	49
12	9·7384343	1930	10·2615657	9·2128151	9·8158311	2757	10·1841689	9·6555579	10·0773968	827	9·9226032	48
13	9·7386273	1928	10·2613727	9·2132388	9·8161068	2756	10·1838932	9·6553242	10·0774795	828	9·9225205	47
14	9·7388201	1928	10·2611799	9·2136622	9·8163824	2756	10·1836176	9·6550904	10·0775623	828	9·9224377	46
15	9·7390129	1926	10·2609871	9·2140854	9·8166580	2755	10·1833420	9·6548566	10·0776451	828	9·9223549	45
16	9·7392055	1925	10·2607945	9·2145084	9·8169335	2754	10·1830665	9·6546227	10·0777279	830	9·9222721	44
17	9·7393980	1924	10·2606020	9·2149311	9·8172089	2753	10·1827911	9·6543887	10·0778109	829	9·9221891	43
18	9·7395904	1923	10·2604096	9·2153537	9·8174842	2753	10·1825158	9·6541546	10·0778938	830	9·9221062	42
19	9·7397827	1921	10·2602173	9·2157760	9·8177595	2752	10·1822405	9·6539204	10·0779768	831	9·9220232	41
20	9·7399748	1920	10·2600252	9·2161981	9·8180347	2751	10·1819653	9·6536861	10·07805[illegible]	831	9·9219401	40
21	9·7401668	1919	10·2598332	9·2166199	9·8183098	2751	10·1816902	9·6534518	10·0781430	832	9·9218570	39
22	9·7403587	1918	10·2596413	9·2170416	9·8185849	2750	10·1814151	9·6532174	10·0782262	832	9·9217738	38
23	9·7405505	1916	10·2594495	9·2174630	9·8188599	2749	10·1811401	9·6529829	10·0783094	834	9·9216906	37
24	9·7407421	1916	10·2592579	9·2178842	9·8191348	2748	10·1808652	9·6527483	10·0783927	833	9·9216073	36
25	9·7409337	1914	10·2590663	9·2183052	9·8194096	2748	10·1805904	9·6525136	10·0784760	834	9·9215240	35
26	9·7411251	1913	10·2588749	9·2187259	9·8196844	2748	10·1803156	9·6522789	10·0785594	834	9·9214406	34
27	9·7413164	1911	10·2586836	9·2191464	9·8199592	2746	10·1800408	9·6520441	10·0786428	835	9·9213572	33
28	9·7415075	1911	10·2584925	9·2195668	9·8202338	2746	10·1797662	9·6518092	10·0787263	835	9·9212737	32
29	9·7416986	1909	10·2583014	9·2199868	9·8205084	2745	10·1794916	9·6515742	10·0788098	836	9·9211902	31
30	9·7418895	1908	10·2581105	9·2204067	9·8207829	2745	10·1792171	9·6513391	10·0788934	837	9·9211066	30
31	9·7420803	1907	10·2579197	9·2208263	9·8210574	2743	10·1789426	9·6511039	10·0789771	836	9·9210229	29
32	9·7422710	1906	10·2577290	9·2212458	9·8213317	2743	10·1786683	9·6508687	10·0790607	838	9·9209393	28
33	9·7424616	1904	10·2575384	9·2216650	9·8216060	2743	10·1783940	9·6506334	10·0791445	838	9·9208555	27
34	9·7426520	1903	10·2573480	9·2220839	9·8218803	2742	10·1781197	9·6503980	10·0792283	839	9·9207717	26
35	9·7428423	1902	10·2571577	9·2225027	9·8221545	2741	10·1778455	9·6501625	10·0793122	839	9·9206878	25
36	9·7430325	1901	10·2569675	9·2229212	9·8224286	2740	10·1775714	9·6499269	10·0793961	839	9·9206039	24
37	9·7432226	1900	10·2567774	9·2233396	9·8227026	2740	10·1772974	9·6496913	10·0794800	840	9·9205200	23
38	9·7434126	1898	10·2565874	9·2237577	9·8229766	2739	10·1770234	9·6494556	10·0795640	841	9·9204360	22
39	9·7436024	1897	10·2563976	9·2241755	9·8232505	2739	10·1767495	9·6492197	10·0796481	841	9·9203519	21
40	9·7437921	1896	10·2562079	9·2245932	9·8235244	2737	10·1764756	9·6489839	10·0797322	842	9·9202678	20
41	9·7439817	1895	10·2560183	9·2250106	9·8237981	2738	10·1762019	9·6487479	10·0798164	842	9·9201836	19
42	9·7441712	1894	10·2558288	9·2254279	9·8240719	2736	10·1759281	9·6485118	10·0799006	843	9·9200994	18
43	9·7443606	1892	10·2556394	9·2258449	9·8243455	2736	10·1756545	9·6482757	10·0799849	843	9·9200151	17
44	9·7445498	1892	10·2554502	9·2262617	9·8246191	2735	10·1753809	9·6480394	10·0800692	844	9·9199308	16
45	9·7447390	1890	10·2552610	9·2266782	9·8248926	2734	10·1751074	9·6478031	10·0801536	845	9·9198464	15
46	9·7449280	1889	10·2550720	9·2270946	9·8251660	2734	10·1748340	9·6475667	10·0802381	844	9·9197619	14
47	9·7451169	1887	10·2548831	9·2275107	9·8254394	2733	10·1745606	9·6473303	10·0803225	846	9·9196775	13
48	9·7453056	1887	10·2546944	9·2279266	9·8257127	2733	10·1742873	9·6470937	10·0804071	846	9·9195929	12
49	9·7454943	1885	10·2545057	9·2283423	9·8259860	2732	10·1740140	9·6468571	10·0804917	846	9·9195083	11
50	9·7456828	1884	10·2543172	9·2287578	9·8262592	2731	10·1737408	9·6466204	10·0805763	847	9·9194237	10
51	9·7458712	1883	10·2541288	9·2291731	9·8265323	2730	10·1734677	9·6463836	10·0806610	848	9·9193390	9
52	9·7460595	1882	10·2539405	9·2295881	9·8268053	2730	10·1731947	9·6461467	10·0807458	848	9·9192542	8
53	9·7462477	1881	10·2537523	9·2300029	9·8270783	2730	10·1729217	9·6459097	10·0808306	849	9·9191694	7
54	9·7464358	1879	10·2535642	9·2304175	9·8273513	2728	10·1726487	9·6456726	10·0809155	849	9·9190845	6
55	9·7466237	1878	10·2533763	9·2308319	9·8276241	2728	10·1723759	9·6454355	10·0810004	850	9·9189996	5
56	9·7468115	1877	10·2531885	9·2312461	9·8278969	2727	10·1721031	9·6451983	10·0810854	850	9·9189146	4
57	9·7469992	1876	10·2530008	9·2316601	9·8281696	2727	10·1718304	9·6449610	10·0811704	851	9·9188296	3
58	9·7471868	1875	10·2528132	9·2320738	9·8284423	2726	10·1715577	9·6447236	10·0812555	851	9·9187445	2
59	9·7473743	1874	10·2526257	9·2324874	9·8287149	2725	10·1712851	9·6444861	10·0813406	852	9·9186594	1
60	9·7475617		10·2524383	9·2329007	9·8289874		10·1710126	9·6442486	10·0814258		9·9185742	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	5591929	2411	4408071	1·7882916	6745085	1·4825610	1·2062179	1709624	1627	8290376	60
1	5594340	2411	4405660	1·7875208	6749318	1·4816311	1·2064547	1711251	1628	8288749	59
2	5596751	2411	4403249	1·7867508	6753553	1·4807021	1·2066917	1712879	1628	8287121	58
3	5599162	2410	4400838	1·7859817	6757790	1·4797738	1·2069288	1714507	1629	8285493	57
4	5601572	2409	4398428	1·7852134	6762028	1·4788463	1·2071662	1716136	1630	8283864	56
5	5603981	2409	4396019	1·7844457	6766268	1·4779197	1·2074037	1717766	1631	8282234	55
6	5606390	2408	4393610	1·7836790	6770509	1·4769938	1·2076415	1719397	1631	8280603	54
7	5608798	2408	4391202	1·7829131	6774752	1·4760688	1·2078794	1721028	1632	8278972	53
8	5611206	2408	4388794	1·7821479	6778997	1·4751445	1·2081175	1722660	1632	8277340	52
9	5613614	2407	4386386	1·7813836	6783243	1·4742210	1·2083559	1724292	1634	8275708	51
10	5616021	2407	4383979	1·7806201	6787492	1·4732983	1·2085944	1725926	1634	8274074	50
11	5618428	2406	4381572	1·7798574	6791741	1·4723764	1·2088331	1727560	1634	8272440	49
12	5620834	2405	4379166	1·7790955	6795993	1·4714553	1·2090720	1729194	1636	8270806	48
13	5623239	2406	4376761	1·7783344	6800246	1·4705350	1·2093112	1730830	1636	8269170	47
14	5625645	2404	4374355	1·7775741	6804501	1·4696155	1·2095505	1732466	1637	8267534	46
15	5628049	2404	4371951	1·7768146	6808758	1·4686967	1·2097900	1734103	1637	8265897	45
16	5630453	2404	4369547	1·7760559	6813016	1·4677788	1·2100297	1735740	1638	8264260	44
17	5632857	2403	4367143	1·7752980	6817276	1·4668616	1·2102696	1737378	1639	8262622	43
18	5635260	2403	4364740	1·7745409	6821537	1·4659452	1·2105097	1739017	1640	8260983	42
19	5637663	2403	4362337	1·7737845	6825801	1·4650296	1·2107500	1740657	1640	8259343	41
20	5640066	2401	4359934	1·7730290	6830066	1·4641147	1·2109905	1742297	1641	8257703	40
21	5642467	2402	4357533	1·7722743	6834333	1·4632007	1·2112312	1743938	1642	8256062	39
22	5644869	2401	4355131	1·7715204	6838601	1·4622874	1·2114721	1745580	1642	8254420	38
23	5647270	2400	4352730	1·7707672	6842871	1·4613749	1·2117132	1747222	1643	8252778	37
24	5649670	2400	4350330	1·7700149	6847143	1·4604632	1·2119545	1748865	1644	8251135	36
25	5652070	2399	4347930	1·7692633	6851416	1·4595522	1·2121960	1750509	1644	8249491	35
26	5654469	2399	4345531	1·7685125	6855692	1·4586420	1·2124377	1752153	1645	8247847	34
27	5656868	2399	4343132	1·7677625	6859969	1·4577326	1·2126795	1753798	1646	8246202	33
28	5659267	2398	4340733	1·7670133	6864247	1·4568240	1·2129216	1755444	1647	8244556	32
29	5661665	2397	4338335	1·7662649	6868528	1·4559161	1·2131639	1757091	1647	8242909	31
30	5664062	2397	4335938	1·7655173	6872810	1·4550090	1·2134064	1758738	1648	8241262	30
31	5666459	2397	4333541	1·7647704	6877093	1·4541027	1·2136491	1760386	1649	8239614	29
32	5668856	2396	4331144	1·7640244	6881379	1·4531971	1·2138920	1762035	1649	8237965	28
33	5671252	2396	4328748	1·7632791	6885666	1·4522923	1·2141351	1763684	1650	8236316	27
34	5673648	2395	4326352	1·7625345	6889955	1·4513883	1·2143784	1765334	1651	8234666	26
35	5676043	2394	4323957	1·7617908	6894246	1·4504850	1·2146218	1766985	1651	8233015	25
36	5678437	2395	4321563	1·7610478	6898538	1·4495825	1·2148655	1768636	1652	8231364	24
37	5680832	2393	4319168	1·7603057	6902832	1·4486808	1·2151094	1770288	1653	8229712	23
38	5683225	2394	4316775	1·7595642	6907128	1·4477798	1·2153535	1771941	1654	8228059	22
39	5685619	2392	4314381	1·7588236	6911425	1·4468796	1·2155978	1773595	1654	8226405	21
40	5688011	2392	4311989	1·7580837	6915725	1·4459801	1·2158423	1775249	1655	8224751	20
41	5690403	2392	4309597	1·7573446	6920026	1·4450814	1·2160870	1776904	1656	8223096	19
42	5692795	2392	4307205	1·7566063	6924328	1·4441834	1·2163319	1778560	1656	8221440	18
43	5695187	2390	4304813	1·7558687	6928633	1·4432862	1·2165770	1780216	1657	8219784	17
44	5697577	2391	4302423	1·7551320	6932939	1·4423897	1·2168223	1781873	1658	8218127	16
45	5699968	2389	4300032	1·7543959	6937247	1·4414940	1·2170678	1783531	1658	8216469	15
46	5702357	2390	4297643	1·7536607	6941557	1·4405991	1·2173135	1785189	1659	8214811	14
47	5704747	2389	4295253	1·7529262	6945868	1·4397049	1·2175594	1786848	1660	8213152	13
48	5707136	2388	4292864	1·7521924	6950181	1·4388114	1·2178055	1788508	1660	8211492	12
49	5709524	2388	4290476	1·7514595	6954496	1·4379187	1·2180518	1790168	1662	8209832	11
50	5711912	2387	4288088	1·7507273	6958813	1·4370268	1·2182983	1791830	1661	8208170	10
51	5714299	2387	4285701	1·7499958	6963131	1·4361356	1·2185450	1793491	1663	8206509	9
52	5716686	2387	4283314	1·7492651	6967451	1·4352451	1·2187919	1795154	1663	8204846	8
53	5719073	2386	4280927	1·7485352	6971773	1·4343554	1·2190390	1796817	1664	8203183	7
54	5721459	2385	4278541	1·7478060	6976097	1·4334664	1·2192864	1798481	1665	8201519	6
55	5723844	2385	4276156	1·7470776	6980422	1·4325781	1·2195339	1800146	1665	8199854	5
56	5726229	2385	4273771	1·7463499	6984749	1·4316906	1·2197816	1801811	1666	8198189	4
57	5728614	2384	4271386	1·7456230	6989078	1·4308039	1·2200296	1803477	1667	8196523	3
58	5730998	2383	4269002	1·7448969	6993409	1·4299178	1·2202777	1805144	1667	8194856	2
59	5733381	2383	4266619	1·7441715	6997741	1·4290326	1·2205260	1806811	1669	8193189	1
60	5735764		4264236	1·7434468	7002075	1·4281480	1·2207746	1808480		8191520	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·7475617	1872	10·2524383	9·2329007	9·8289874	2725	10·1710126	9·6442486	10·0814258	852	9·9185742	60
1	9·7477469	1871	10·2522511	9·2333138	9·8292599	2724	10·1707401	9·6440109	10·0815110	853	9·9184890	59
2	9·7479360	1870	10·2520640	9·2337267	9·8295323	2724	10·1704677	9·6437732	10·0815963	854	9·9184037	58
3	9·7481230	1869	10·2518770	9·2341393	9·8298047	2722	10·1701953	9·6435354	10·0816817	854	9·9183183	57
4	9·7483099	1868	10·2516901	9·2345518	9·8300769	2723	10·1699231	9·6432975	10·0817671	854	9·9182329	56
5	9·7484967	1866	10·2515033	9·2349640	9·8303492	2721	10·1696508	9·6430596	10·0818525	855	9·9181475	55
6	9·7486833	1865	10·2513167	9·2353761	9·8306213	2721	10·1693787	9·6428215	10·0819380	856	9·9180620	54
7	9·7488698	1864	10·2511302	9·2357879	9·8308934	2720	10·1691066	9·6425834	10·0820236	856	9·9179764	53
8	9·7490562	1863	10·2509438	9·2361995	9·8311654	2720	10·1688346	9·6423452	10·0821092	857	9·9178908	52
9	9·7492425	1862	10·2507575	9·2366109	9·8314374	2719	10·1685626	9·6421068	10·0821949	857	9·9178051	51
10	9·7494287	1861	10·2505713	9·2370221	9·8317093	2718	10·1682907	9·6418685	10·0822806	858	9·9177194	50
11	9·7496148	1859	10·2503852	9·2374330	9·8319811	2718	10·1680189	9·6416300	10·0823664	858	9·9176336	49
12	9·7498007	1859	10·2501993	9·2378438	9·8322529	2717	10·1677471	9·6413914	10·0824522	859	9·9175478	48
13	9·7499866	1857	10·2500134	9·2382543	9·8325246	2717	10·1674754	9·6411528	10·0825381	859	9·9174619	47
[redacted]	7501723	1856	10·2498277	9·2386647	9·8327963	2716	10·1672037	9·6409141	10·0826240	860	9·9173760	46
15	9·7503579	1855	10·2496421	9·2390748	9·8330679	2715	10·1669321	9·6406753	10·0827100	860	9·9172900	45
16	9·7505434	1853	10·2494566	9·2394847	9·8333394	2715	10·1666606	9·6404364	10·0827960	861	9·9172040	44
17	9·7507287	1853	10·2492713	9·2398944	9·8336109	2714	10·1663891	9·6401974	10·0828821	862	9·9171179	43
18	9·7509140	1851	10·2490860	9·2403038	9·8338823	2713	10·1661177	9·6399583	10·0829683	862	9·9170317	42
19	9·7510991	1851	10·2489009	9·2407131	9·8341536	2713	10·1658464	9·6397192	10·0830545	862	9·9169455	41
20	9·7512842	1849	10·2487158	9·2411222	9·8344249	2712	10·1655751	9·6394800	10·0831407	863	9·9168593	40
21	9·7514691	1847	10·2485309	9·2415310	9·8346961	2712	10·1653039	9·6392406	10·0832270	864	9·9167730	39
22	9·7516538	1847	10·2483462	9·2419396	9·8349673	2711	10·1650327	9·6390012	10·0833134	864	9·9166866	38
23	9·7518385	1846	10·2481615	9·2423481	9·8352384	2710	10·1647616	9·6387618	10·0833998	865	9·9166002	37
24	9·7520231	1844	10·2479769	9·2427563	9·8355094	2710	10·1644906	9·6385222	10·0834863	865	9·9165137	36
25	9·7522075	1844	10·2477925	9·2431643	9·8357804	2709	10·1642196	9·6382825	10·0835728	866	9·9164272	35
26	9·7523919	1842	10·2476081	9·2435721	9·8360513	2708	10·1639487	9·6380428	10·0836594	867	9·9163406	34
27	9·7525761	1841	10·2474239	9·2439797	9·8363221	2708	10·1636779	9·6378030	10·0837461	866	9·9162539	33
28	9·7527602	1840	10·2472398	9·2443871	9·8365929	2707	10·1634071	9·6375631	10·0838327	868	9·9161673	32
29	9·7529442	1838	10·2470558	9·2447942	9·8368636	2707	10·1631364	9·6373231	10·0839195	868	9·9160805	31
30	9·7531280	1838	10·2468720	9·2452012	9·8371343	2706	10·1628657	9·6370830	10·0840063	868	9·9159937	30
31	9·7533118	1836	10·2466882	9·2456079	9·8374049	2706	10·1625951	9·6368429	10·0840931	869	9·9159069	29
32	9·7534954	1836	10·2465046	9·2460145	9·8376755	2705	10·1623245	9·6366026	10·0841800	870	9·9158200	28
33	9·7536790	1834	10·2463210	9·2464208	9·8379460	2704	10·1620540	9·6363623	10·0842670	870	9·9157330	27
34	9·7538624	1833	10·2461376	9·2468269	9·8382164	2703	10·1617836	9·6361219	10·0843540	871	9·9156460	26
35	9·7540457	1831	10·2459543	9·2472328	9·8384867	2704	10·1615133	9·6358814	10·0844411	871	9·9155589	25
36	9·7542288	1831	10·2457712	9·2476385	9·8387571	2702	10·1612429	9·6356408	10·0845282	872	9·9154718	24
37	9·7544119	1830	10·2455881	9·2480440	9·8390273	2702	10·1609727	9·6354001	10·0846154	872	9·9153846	23
38	9·7545949	1828	10·2454051	9·2484493	9·8392975	2701	10·1607025	9·6351594	10·0847026	873	9·9152974	22
39	9·7547777	1827	10·2452223	9·2488544	9·8395676	2701	10·1604324	9·6349185	10·0847899	873	9·9152101	21
40	9·7549604	1827	10·2450396	9·2492593	9·8398377	2700	10·1601623	9·6346776	10·0848772	874	9·9151228	20
41	9·7551431	1825	10·2448569	9·2496640	9·8401077	2699	10·1598923	9·6344366	10·0849646	875	9·9150354	19
42	9·7553256	1824	10·2446744	9·2500684	9·8403776	2699	10·1596224	9·6341955	10·0850521	875	9·9149479	18
43	9·7555080	1822	10·2444920	9·2504727	9·8406475	2699	10·1593525	9·6339543	10·0851396	875	9·9148604	17
44	9·7556902	1822	10·2443098	9·2508767	9·8409174	2697	10·1590826	9·6337131	10·0852271	877	9·9147729	16
45	9·7558724	1820	10·2441276	9·2512806	9·8411871	2698	10·1588129	9·6334717	10·0853148	876	9·9146852	15
46	9·7560544	1820	10·2439456	9·2516842	9·8414569	2696	10·1585431	9·6332303	10·0854024	877	9·9145976	14
47	9·7562364	1818	10·2437636	9·2520876	9·8417265	2696	10·1582735	9·6329888	10·0854901	878	9·9145099	13
48	9·7564182	1817	10·2435818	9·2524909	9·8419961	2696	10·1580039	9·6327472	10·0855779	879	9·9144221	12
49	9·7565999	1816	10·2434001	9·2528939	9·8422657	2694	10·1577343	9·6325055	10·0856658	878	9·9143342	11
50	9·7567815	1815	10·2432185	9·2532967	9·8425351	2695	10·1574649	9·6322637	10·0857536	880	9·9142464	10
51	9·7569630	1814	10·2430370	9·2536993	9·8428046	2693	10·1571954	9·6320218	10·0858416	880	9·9141584	9
52	9·7571444	1812	10·2428556	9·2541017	9·8430739	2693	10·1569261	9·6317799	10·0859296	880	9·9140704	8
53	9·7573256	1812	10·2426744	9·2545039	9·8433432	2693	10·1566568	9·6315378	10·0860176	881	9·9139824	7
54	9·7575068	1810	10·2424932	9·2549059	9·8436125	2692	10·1563875	9·6312957	10·0861057	882	9·9138943	6
55	9·7576878	1809	10·2423122	9·2553077	9·8438817	2691	10·1561183	9·6310535	10·0861939	882	9·9138061	5
56	9·7578687	1808	10·2421313	9·2557093	9·8441508	2691	10·1558492	9·6308112	10·0862821	883	9·9137179	4
57	9·7580495	1807	10·2419505	9·2561107	9·8444199	2690	10·[redacted]	9·6305688	10·0863704	883	9·9136296	3
58	9·7582302	1806	10·2417698	9·2565119	9·8446889	2690	10·1553111	9·6303264	10·0864587	883	9·9135413	2
59	9·7584108	1805	10·2415892	9·2569128	9·8449579	2689	10·1550421	9·6300838	10·0865470	885	9·9134530	1
60	9·7585913		10·2414087	9·2573136	9·8452268		10·1547732	9·6298412	10·0866355		9·9133645	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	5735764	2383	4264236	1·7434468	7002075	1·4281480	1·2207746	1808480	1668	[illegible]	60
1	5738147	2382	4261853	1·7427229	7006411	1·4272642	1·2210233	1810148	1670	[illegible]	59
2	5740529	2382	4259471	1·7419997	7010749	1·4263811	1·2212723	1811818	1670	[illegible]	58
3	5742911	2381	4257089	1·7412773	7015089	1·4254988	1·2215215	1813488	1671	[illegible]	57
4	5745292	2380	4254708	1·7405556	7019430	1·4246171	1·2217708	1815159	1672	[illegible]	56
5	5747672	2381	4252328	1·7398347	7023773	1·4237362	1·2220204	1816831	1672	[illegible]	55
6	5750053	2379	4249947	1·7391145	7028118	1·4228561	1·2222702	1818503	1673	[illegible]	54
7	5752432	2379	4247568	1·7383951	7032464	1·4219766	1·2225202	1820176	1673	[illegible]	53
8	5754811	2379	4245189	1·7376764	7036813	1·4210979	1·2227703	1821849	1675	[illegible]	52
9	5757190	2378	4242810	1·7369585	7041163	1·4202200	1·2230207	1823524	1675	[illegible]	51
10	5759568	2378	4240432	1·7362413	7045515	1·4193427	1·2232713	1825199	1676	[illegible]	50
11	5761946	2377	4238054	1·7355248	7049869	1·4184662	1·2235222	1826875	1676	[illegible]	49
12	5764323	2377	4235677	1·7348091	7054224	1·4175904	1·2237732	1828551	1677	[illegible]	48
13	5766700	2376	4233300	1·7340941	7058581	1·4167153	1·2240244	1830228	1678	[illegible]	47
14	5769076	2376	4230924	1·7333798	7062940	1·4158409	1·2242758	1831906	1678	[illegible]	46
15	5771452	2375	4228548	1·7326663	7067301	1·4149673	1·2245274	1833584	1680	[illegible]	45
16	5773827	2375	4226173	1·7319535	7071664	1·4140943	1·2247793	1835264	1680	[illegible]	44
17	5776202	2374	4223798	1·7312414	7076028	1·4132221	1·2250313	1836944	1680	[illegible]	43
18	5778576	2374	4221424	1·7305301	7080395	1·4123506	1·2252836	1838624	1681	[illegible]	42
19	5780950	2373	4219050	1·7298195	7084763	1·4114799	1·2255361	1840305	1682	[illegible]	41
20	5783323	2371	4216677	1·7291096	7089133	1·4106098	1·2257887	1841987	1683	[illegible]	40
21	5785696	2373	4214304	1·7284005	7093504	1·4097405	1·2260416	1843670	1683	[illegible]	39
22	5788069	2371	4211931	1·7276921	7097878	1·4088718	1·2262947	1845353	1684	[illegible]	38
23	5790440	2372	4209560	1·7269844	7102253	1·4080039	1·2265480	1847037	1685	[illegible]	37
24	5792812	2371	4207188	1·7262774	7106630	1·4071367	1·2268015	1848722	1685	[illegible]	36
25	5795183	2370	4204817	1·7255712	7111009	1·4062702	1·2270552	1850407	1687	[illegible]	35
26	5797553	2370	4202447	1·7248657	7115390	1·4054044	1·2273091	1852094	1686	[illegible]	34
27	5799923	2369	4200077	1·7241609	7119772	1·4045393	1·2275633	1853780	1688	[illegible]	33
28	5802292	2369	4197708	1·7234568	7124157	1·4036749	1·2278176	1855468	1688	[illegible]	32
29	5804661	2369	4195339	1·7227534	7128543	1·4028113	1·2280722	1857156	1689	[illegible]	31
30	5807030	2367	4192970	1·7220508	7132931	1·4019483	1·2283269	1858845	1689	[illegible]	30
31	5809397	2368	4190603	1·7213489	7137320	1·4010860	1·2285819	1860534	1691	[illegible]	29
32	5811765	2367	4188235	1·7206477	7141712	1·4002245	1·2288371	1862225	1691	[illegible]	28
33	5814132	2366	4185868	1·7199472	7146106	1·3993636	1·2290921	1863916	1691	[illegible]	27
34	5816498	2366	4183502	1·7192473	7150501	1·3985034	1·2293480	1865607	1692	[illegible]	26
35	5818864	2366	4181136	1·7185484	7154898	1·3976440	1·2296039	1867299	1693	[illegible]	25
36	5821230	2365	4178770	1·7178501	7159297	1·3967852	1·2298599	1868992	1694	[illegible]	24
37	5823595	2364	4176405	1·7171525	7163698	1·3959272	1·2301161	1870686	1694	[illegible]	23
38	5825959	2364	4174041	1·7164556	7168100	1·3950698	1·2303725	1872380	1695	[illegible]	22
39	5828323	2364	4171677	1·7157594	7172505	1·3942131	1·2306292	1874075	1696	[illegible]	21
40	5830687	2363	4169313	1·7150639	7176911	1·3933571	1·2308861	1875771	1697	[illegible]	20
41	5833050	2362	4166950	1·7143691	7181319	1·3925019	1·2311432	1877468	1697	[illegible]	19
42	5835412	2362	4164588	1·7136750	7185729	1·3916473	1·2314004	1879165	1698	[illegible]	18
43	5837774	2362	4162226	1·7129817	7190141	1·3907934	1·2316579	1880863	1698	[illegible]	17
44	5840136	2361	4159864	1·7122890	7194554	1·3899401	1·2319156	1882561	1699	[illegible]	16
45	5842497	2360	4157503	1·7115970	7198970	1·3890876	1·2321736	1884260	1700	[illegible]	15
46	5844857	2360	4155143	1·7109058	7203387	1·3882358	1·2324317	1885960	1701	[illegible]	14
47	5847217	2360	4152783	1·7102152	7207806	1·3873847	1·2326900	1887661	1701	[illegible]	13
48	5849577	2359	4150423	1·7095254	7212227	1·3865342	1·2329486	1889362	1702	[illegible]	12
49	5851936	2358	4148064	1·7088362	7216650	1·3856844	1·2332074	1891064	1702	[illegible]	11
50	5854294	2358	4145706	1·7081478	7221075	1·3848353	1·2334664	1892766	1704	[illegible]	10
51	5856652	2358	4143348	1·7074601	7225502	1·3839869	1·2337256	1894470	1704	[illegible]	9
52	5859010	2357	4140990	1·7067730	7229930	1·3831392	1·2339850	1896174	1704	[illegible]	8
53	5861367	2357	4138633	1·7060867	7234361	1·3822922	1·2342446	1897878	1706	[illegible]	7
54	5863724	2356	4136276	1·7054010	7238793	1·3814458	1·2345044	1899584	1706	[illegible]	6
55	5866080	2355	4133920	1·7047160	7243227	1·3806001	1·2347645	1901290	1706	[illegible]	5
56	5868435	2355	4131565	1·7040318	7247663	1·3797551	1·2350248	1902996	1708	[illegible]	4
57	5870790	2355	4129210	1·7033482	7252101	1·3789108	1·2352852	1904704	1708	[illegible]	3
58	5873145	2354	4126855	1·7026653	7256540	1·3780672	1·2355459	1906412	1709	[illegible]	2
59	5875499	2354	4124501	1·7019831	7260982	1·3772242	1·2358069	1908121	1709	[illegible]	1
60	5877853		4122147	1·7013016	7265425	1·3763819	1·2360680	1909830		[illegible]	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·7585913	1804	10·2414087	9·2573136	9·8452268	2688	10·1547732	9·6298412	10·0866355	885	9·9133645	60
1	9·7587717	1802	10·2412283	9·2577142	9·8454956	2688	10·1545044	9·6295985	10·0867240	885	9·9132760	59
2	9·7589519	1802	10·2410481	9·2581145	9·8457644	2688	10·1542356	9·6293557	10·0868125	886	9·9131875	58
3	9·7591321	1800	10·2408679	9·2585147	9·8460332	2686	10·1539668	9·6291128	10·0869011	887	9·9130989	57
4	9·7593121	1799	10·2406879	9·2589147	9·8463018	2687	10·1536982	9·6288698	10·0869898	887	9·9130102	56
5	9·7594920	1798	10·2405080	9·2593144	9·8465705	2685	10·1534295	9·6286267	10·0870785	887	9·9129215	55
6	9·7596718	1797	10·2403282	9·2597140	9·8468390	2685	10·1531610	9·6283836	10·0871672	888	9·9128328	54
7	9·7598515	1796	10·2401485	9·2601133	9·8471075	2685	10·1528925	9·6281403	10·0872560	889	9·9127440	53
8	9·7600311	1795	10·2399689	9·2605125	9·8473760	2684	10·1526240	9·6278970	10·0873449	889	9·9126551	52
9	9·7602106	1793	10·2397894	9·2609114	9·8476444	2683	10·1523556	9·6276536	10·0874338	890	9·9125662	51
10	9·7603899	1793	10·2396101	9·2613102	9·8479127	2683	10·1520873	9·6274101	10·0875228	890	9·9124772	50
11	9·7605692	1791	10·2394308	9·2617087	9·8481810	2682	10·1518190	9·6271665	10·0876118	891	9·9123882	49
12	9·7607483	1791	10·2392517	9·2621071	9·8484492	2682	10·1515508	9·6269228	10·0877009	892	9·9122991	48
13	9·7609274	1789	10·2390726	9·2625052	9·8487174	2681	10·1512826	9·6266791	10·0877901	892	9·9122099	47
14	9·7611063	1788	10·2388937	9·2629032	9·8489855	2681	10·1510145	9·6264352	10·0878793	892	9·9121207	46
15	9·7612851	1787	10·2387149	9·2633009	9·8492536	2680	10·1507464	9·6261913	10·0879685	893	9·9120315	45
16	9·7614638	1786	10·2385362	9·2636985	9·8495216	2680	10·1504784	9·6259473	10·0880578	894	9·9119422	44
17	9·7616424	1784	10·2383576	9·2640958	9·8497896	2679	10·1502104	9·6257031	10·0881472	894	9·9118528	43
18	9·7618208	1784	10·2381792	9·2644929	9·8500575	2678	10·1499425	9·6254589	10·0882366	895	9·9117634	42
19	9·7619992	1783	10·2380008	9·2648899	9·8503253	2678	10·1496747	9·6252147	10·0883261	895	9·9116739	41
20	9·7621775	1781	10·2378225	9·2652866	9·8505931	2677	10·1494069	9·6249703	10·0884156	896	9·9115844	40
21	9·7623556	1781	10·2376444	9·2656832	9·8508608	2677	10·1491392	9·6247258	10·0885052	897	9·9114948	39
22	9·7625337	1779	10·2374663	9·2660795	9·8511285	2676	10·1488715	9·6244813	10·0885949	896	9·9114051	38
23	9·7627116	1778	10·2372884	9·2664757	9·8513961	2676	10·1486039	9·6242367	10·0886845	898	9·9113155	37
24	9·7628894	1777	10·2371106	9·2668716	9·8516637	2675	10·1483363	9·6239919	10·0887743	898	9·9112257	36
25	9·7630671	1776	10·2369329	9·2672674	9·8519312	2675	10·1480688	9·6237471	10·0888641	899	9·9111359	35
26	9·7632447	1775	10·2367553	9·2676629	9·8521987	2674	10·1478013	9·6235022	10·0889540	899	9·9110460	34
27	9·7634222	1774	10·2365778	9·2680583	9·8524661	2674	10·1475339	9·6232573	10·0890439	900	9·9109561	33
28	9·7635996	1773	10·2364004	9·2684534	9·8527335	2673	10·1472665	9·6230122	10·0891339	900	9·9108661	32
29	9·7637769	1771	10·2362231	9·2688484	9·8530008	2672	10·1469992	9·6227670	10·0892239	901	9·9107761	31
30	9·7639540	1771	10·2360460	9·2692431	9·8532680	2672	10·1467320	9·6225218	10·0893140	901	9·9106860	30
31	9·7641311	1769	10·2358689	9·2696377	9·8535352	2671	10·1464648	9·6222765	10·0894041	902	9·9105959	29
32	9·7643080	1769	10·2356920	9·2700321	9·8538023	2671	10·1461977	9·6220311	10·0894943	902	9·9105057	28
33	9·7644849	1767	10·2355151	9·2704262	9·8540694	2671	10·1459306	9·6217855	10·0895845	904	9·9104155	27
34	9·7646616	1766	10·2353384	9·2708202	9·8543365	2669	10·1456635	9·6215400	10·0896749	903	9·9103251	26
35	9·7648382	1765	10·2351618	9·2712140	9·8546034	2670	10·1453966	9·6212943	10·0897652	904	9·9102348	25
36	9·7650147	1764	10·2349853	9·2716075	9·8548704	2668	10·1451296	9·6210485	10·0898556	905	9·9101444	24
37	9·7651911	1763	10·2348089	9·2720009	9·8551372	2669	10·1448628	9·6208026	10·0899461	905	9·9100539	23
38	9·7653674	1762	10·2346326	9·2723941	9·8554041	2667	10·1445959	9·6205567	10·0900366	906	9·9099634	22
39	9·7655436	1761	10·2344564	9·2727871	9·8556708	2668	10·1443292	9·6203107	10·0901272	907	9·9098728	21
40	9·7657197	1760	10·2342803	9·2731799	9·8559376	2666	10·1440624	9·6200645	10·0902179	906	9·9097821	20
41	9·7658957	1758	10·2341043	9·2735725	9·8562042	2666	10·1437958	9·6198183	10·0903085	908	9·9096915	19
42	9·7660715	1758	10·2339285	9·2739649	9·8564708	2666	10·1435292	9·6195720	10·0903993	908	9·9096007	18
43	9·7662473	1756	10·2337527	9·2743571	9·8567374	2665	10·1432626	9·6193256	10·0904901	909	9·9095099	17
44	9·7664229	1756	10·2335771	9·2747491	9·8570039	2665	10·1429961	9·6190792	10·0905810	909	9·9094190	16
45	9·7665985	1754	10·2334015	9·2751409	9·8572704	2664	10·1427296	9·6188326	10·0906719	910	9·9093281	15
46	9·7667739	1753	10·2332261	9·2755325	9·8575368	2663	10·1424632	9·6185860	10·0907629	910	9·9092371	14
47	9·7669492	1752	10·2330508	9·2759239	9·8578031	2663	10·1421969	9·6183392	10·0908539	911	9·9091461	13
48	9·7671244	1752	10·2328756	9·2763151	9·8580694	2663	10·1419306	9·6180924	10·0909450	911	9·9090550	12
49	9·7672996	1750	10·2327004	9·2767062	9·8583357	2662	10·1416643	9·6178455	10·0910361	912	9·9089639	11
50	9·7674746	1748	10·2325254	9·2770970	9·8586019	2661	10·1413981	9·6175985	10·0911273	913	9·9088727	10
51	9·7676494	1748	10·2323506	9·2774876	9·8588680	2661	10·1411320	9·6173514	10·0912186	913	9·9087814	9
52	9·7678242	1747	10·2321758	9·2778781	9·8591341	2661	10·1408659	9·6171042	10·0913099	913	9·9086901	8
53	9·7679989	1746	10·2320011	9·2782683	9·8594002	2659	10·1405998	9·6168569	10·0914012	915	[redacted]	7
54	9·7681735	1745	10·2318265	9·2786584	9·8596661	2660	10·1403339	9·6166096	10·0914927	914	9·9085073	6
55	9·7683480	1743	10·2316520	9·2790483	9·8599321	2659	10·1400679	9·6163621	10·0915841	916	[redacted]	5
56	9·7685223	1743	10·2314777	9·2794380	9·8601980	2658	10·1398020	9·6161146	10·0916757	916	9·9083243	4
57	9·7686966	1741	10·2313034	9·2798274	9·8604638	2658	10·1395362	9·6158669	10·0917673	916	9·9082327	3
58	9·7688707	1741	10·2311293	9·2802167	9·8607296	2658	10·1392704	9·6156192	10·0918589	917	9·9081411	2
59	9·7690448	1739	10·2309552	9·2806058	9·8609954	2656	10·1390046	9·6153714	10·0919506	918	9·9080494	1
60	9·7692187		10·2307813	9·2809947	9·8612610		10·1387390	9·6151236	10·0920424		9·9079576	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	'
0	5877853	2353	4122147	1·7013016	7265425	1·3763819	1·2360680	1909830	1710	8090[illegible]	60
1	5880206	2352	4119794	1·7006208	7269871	1·3755403	1·2363294	1911540	1711	[illegible]	59
2	5882558	2352	4117442	1·6999407	7274318	1·3746994	1·2365909	1913251	1712	[illegible]	58
3	5884910	2352	4115090	1·6992612	7278767	1·3738391	1·2368526	1914963	1712	8085037	57
4	5887262	2351	4112738	1·6985825	7283218	1·3730195	1·2371146	1916675	1713	[illegible]	56
5	5889613	2351	4110387	1·6979044	7287671	1·3721806	1·2373768	1918388	1713	8081617	55
6	5891964	2350	4108036	1·6972271	7292125	1·3713423	1·2376394	1920101	1714	[illegible]	54
7	5894314	2349	4105686	1·6965504	7296582	1·3705047	1·2379019	1921815	1715	[illegible]	53
8	5896663	2349	4103337	1·6958744	7301041	1·3696678	1·2381647	1923530	1716	8076470	52
9	5899012	2349	4100988	1·6951990	7305501	1·3688315	1·2384278	1925246	1716	[illegible]	51
10	5901361	2348	4098639	1·6945244	7309963	1·3679959	1·2386911	1926962	1717	[illegible]	50
11	5903709	2348	4096291	1·6938504	7314428	1·3671610	1·2389546	1928679	1718	8071321	49
12	5906057	2347	4093943	1·6931771	7318894	1·3663267	1·2392183	1930397	1718	[illegible]	48
13	5908404	2346	4091596	1·6925045	7323362	1·3654931	1·2394823	1932115	1719	[illegible]	47
14	5910750	2346	4089250	1·6918326	7327832	1·3646602	1·2397464	1933834	1720	[illegible]	46
15	5913096	2346	4086904	1·6911613	7332303	1·3638279	1·2400108	1935554	1720	[illegible]	45
16	5915442	2345	4084558	1·6904907	7336777	1·3629963	1·2402754	1937274	1721	[illegible]	44
17	5917787	2345	4082213	1·6898208	7341253	1·3621653	1·2405402	1938995	1722	[illegible]	43
18	5920132	2344	4079868	1·6891516	7345730	1·3613350	1·2408052	1940717	1723	[illegible]	42
19	5922476	2343	4077524	1·6884830	7350210	1·3605054	1·2410704	1942440	1723	[illegible]	41
20	5924819	2344	4075181	1·6878151	7354691	1·3596764	1·2413359	1944163	1724	[illegible]	40
21	5927163	2342	4072837	1·6871479	7359174	1·3588481	1·2416016	1945887	1724	[illegible]	39
22	5929505	2342	4070495	1·6864814	7363660	1·3580204	1·2418675	1947611	1725	[illegible]	38
23	5931847	2342	4068153	1·6858155	7368147	1·3571934	1·2421336	1949336	1726	[illegible]	37
24	5934189	2341	4065811	1·6851503	7372636	1·3563670	1·2423999	1951062	1727	[illegible]	36
25	5936530	2341	4063470	1·6844857	7377127	1·3555413	1·2426665	1952789	1727	[illegible]	35
26	5938871	2340	4061129	1·6838219	7381620	1·3547162	1·2429333	1954516	1728	[illegible]	34
27	5941211	2339	4058789	1·6831586	7386115	1·3538918	1·2432003	1956244	1728	[illegible]	33
28	5943550	2339	4056450	1·6824961	7390611	1·3530680	1·2434675	1957972	1729	[illegible]	32
29	5945889	2339	4054111	1·6818342	7395110	1·3522449	1·2437349	1959701	1730	[illegible]	31
30	5948228	2338	4051772	1·6811730	7399611	1·3514224	1·2440026	1961431	1731	[illegible]	30
31	5950566	2338	4049434	1·6805124	7404113	1·3506006	1·2442704	1963162	1731	[illegible]	29
32	5952904	2337	4047096	1·6798525	7408618	1·3497794	1·2445385	1964893	1732	[illegible]	28
33	5955241	2336	4044759	1·6791933	7413124	1·3489589	1·2448069	1966625	1733	[illegible]	27
34	5957577	2336	4042423	1·6785347	7417633	1·3481390	1·2450754	1968358	1733	[illegible]	26
35	5959913	2336	4040087	1·6778768	7422143	1·3473198	1·2453442	1970091	1734	[illegible]	25
36	5962249	2335	4037751	1·6772195	7426655	1·3465011	1·2456131	1971825	1735	[illegible]	24
37	5964584	2334	4035416	1·6765629	7431170	1·3456832	1·245[illegible]823	1973560	1735	[illegible]	23
38	5966918	2334	4033082	1·6759070	7435686	1·3448658	1·2461518	1975295	1736	[illegible]	22
39	5969252	2334	4030748	1·6752517	7440204	1·3440492	1·2464214	1977031	1737	[illegible]	21
40	5971586	2333	4028414	1·6745970	7444724	1·3432331	1·2466913	1978768	1737	[illegible]	20
41	5973919	2332	4026081	1·6739430	7449246	1·3424177	1·2469614	1980505	1739	[illegible]	19
42	5976251	2332	4023749	1·6732897	7453770	1·3416029	1·2472317	1982244	1738	[illegible]	18
43	5978583	2332	4021417	1·6726370	7458296	1·3407888	1·2475022	1983982	1740	[illegible]	17
44	5980915	2331	4019085	1·6719850	7462824	1·339975[illegible]	1·2477730	1985722	1740	[illegible]	16
45	5983246	2331	4016754	1·6713336	7467354	1·3391624	1·2480440	1987462	1741	[illegible]	15
46	5985577	2329	4014423	1·6706828	7471886	1·3383502	1·2483152	1989203	1741	[illegible]	14
47	5987906	2330	4012094	1·6700328	7476420	1·3375386	1·2485866	1990944	1742	[illegible]	13
48	5990236	2329	4009764	1·6693833	7480956	1·3367276	1·2488583	1992686	1743	[illegible]	12
49	5992565	2328	4007435	1·6687345	7485494	1·3359172	1·2491302	1994429	1744	8005571	11
50	5994893	2328	4005107	1·6680864	7490033	1·3351075	1·2494023	1996173	1744	[illegible]	10
51	5997221	2328	4002779	1·6674389	7494575	1·3342984	1·2496746	199791[illegible]	1745	[illegible]	9
52	5999549	2327	4000451	1·6667920	7499119	1·3334900	1·2499471	1999662	1745	[illegible]	8
53	6001876	2326	3998124	1·6661458	7503665	1·3326822	1·2502199	2001407	1746	[illegible]	7
54	6004202	2326	3995798	1·6655002	7508212	1·3318750	1·2504929	2003153	1747	[illegible]	6
55	6006528	2326	3993472	1·6648553	7512762	1·3310684	1·2507661	2004900	1748	[illegible]	5
56	6008854	2325	3991146	1·6642110	7517314	1·3302624	1·2510396	2006647	1748	[illegible]	4
57	6011179	2324	3988821	1·6635673	7521867	1·3294571	1·2513133	2008396	1749	[illegible]	3
58	6013503	2324	3986497	1·6629243	7526423	1·3286524	1·2515872	2010145	1750	[illegible]	2
59	6015827	2323	3984173	1·6622819	7530981	1·3278483	1·2518613	2011895	17[illegible]	[illegible]	1
60	6018150		3981850	1·6616401	7535541	1·3270448	1·2521357	2013645		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	'

′	Sine	Dif	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine	′
0	9·7692187	1738	10·2307813	9·2809947	9·8612610	2657	10·1387390	9·6151235	10·0920424	918	9·9079576	60
1	9·7693925	1737	10·2306075	9·2813834	9·8615267	2656	10·1384733	9·6148755	10·0921342	918	9·9078658	59
2	9·7695662	1736	10·2304338	9·2817720	9·8617923	2655	10·1382077	9·6146275	10·0922260	920	9·9077740	58
3	9·7697398	1736	10·2302602	9·2821604	9·8620578	2655	10·1379422	9·6143793	10·0923180	919	9·9076820	57
4	9·7699134	1734	10·2300866	9·2825484	9·8623233	2654	10·1376767	9·6141311	10·0924099	921	9·9075901	56
5	9·7700868	1733	10·2299132	9·2829364	9·8625887	2654	10·1374113	9·6138827	10·0925020	921	9·9074980	55
6	9·7702601	1731	10·2297399	9·2833241	9·8628541	2654	10·1371459	9·6136343	10·0925941	921	9·9074059	54
7	9·7704332	1731	10·2295668	9·2837117	9·8631195	2653	10·1368805	9·6133858	10·0926862	922	9·9073138	53
8	9·7706063	1730	10·2293937	9·2840990	9·8633848	2652	10·1366152	9·6131372	10·0927784	923	9·9072216	52
9	9·7707793	1729	10·2292207	9·2844862	9·8636500	2652	10·1363500	9·6128885	10·0928707	923	9·9071293	51
10	9·7709522	1727	10·2290478	9·2848732	9·8639152	2651	10·1360848	9·6126397	10·0929630	924	9·9070370	50
11	9·7711249	1727	10·2288751	9·2852600	9·8641803	2651	10·1358197	9·6123908	10·0930554	924	9·9069446	49
12	9·7712976	1726	10·2287024	9·2856466	9·8644454	2651	10·1355546	9·6121418	10·0931478	925	9·9068522	48
13	9·7714702	1724	10·2285298	9·2860330	9·8647105	2650	10·1352895	9·6118928	10·0932403	926	9·9067597	47
14	9·7716426	1724	10·2283574	9·2864192	9·8649755	2649	10·1350245	9·6116436	10·0933329	926	9·9066671	46
15	9·7718150	1722	10·2281850	9·2868053	9·8652404	2649	10·1347596	9·6113944	10·0934255	926	9·9065745	45
16	9·7719872	1721	10·2280128	9·2871911	9·8655053	2649	10·1344947	9·6111451	10·0935181	927	9·9064819	44
17	9·7721593	1721	10·2278407	9·2875768	9·8657702	2648	10·1342298	9·6108956	10·0936108	928	9·9063892	43
18	9·7723314	1719	10·2276686	9·2879622	9·8660350	2647	10·1339650	9·6106461	10·0937036	928	9·9062964	42
19	9·7725033	1718	10·2274967	9·2883475	9·8662997	2647	10·1337003	9·6103965	10·0937964	929	9·9062036	41
20	9·7726751	1717	10·2273249	9·2887326	9·8665644	2647	10·1334356	9·6101469	10·0938893	930	9·9061107	40
21	9·7728468	1717	10·2271532	9·2891175	9·8668291	2646	10·1331709	9·6098971	10·0939823	930	9·9060177	39
22	9·7730185	1715	10·2269815	9·2895022	9·8670937	2646	10·1329063	9·6096472	10·0940753	930	9·9059247	38
23	9·7731900	1714	10·2268100	9·2898867	9·8673583	2645	10·1326417	9·6093972	10·0941683	931	9·9058317	37
24	9·7733614	1713	10·2266386	9·2902711	9·8676228	2645	10·1323772	9·6091472	10·0942614	932	9·9057386	36
25	9·7735327	1712	10·2264673	9·2906552	9·8678873	2644	10·1321127	9·6088971	10·0943546	932	9·9056454	35
26	9·7737039	1710	10·2262961	9·2910392	9·8681517	2643	10·1318483	9·6086468	10·0944478	933	9·9055522	34
27	9·7738749	1710	10·2261251	9·2914229	9·8684160	2644	10·1315840	9·6083965	10·0945411	933	9·9054589	33
28	9·7740459	1709	10·2259541	9·2918065	9·8686804	2642	10·1313196	9·6081461	10·0946344	934	9·9053656	32
29	9·7742168	1708	10·2257832	9·2921899	9·8689446	2643	10·1310554	9·6078956	10·0947278	935	9·9052722	31
30	9·7743876	1707	10·2256124	9·2925731	9·8692089	2642	10·1307911	9·6076450	10·0948213	935	9·9051787	30
31	9·7745583	1705	10·2254417	9·2929561	9·8694731	2641	10·1305269	9·6073944	10·0949148	936	9·9050852	29
32	9·7747288	1705	10·2252712	9·2933390	9·8697372	2641	10·1302628	9·6071436	10·0950084	936	9·9049916	28
33	9·7748993	1704	10·2251007	9·2937216	9·8700013	2640	10·1299987	9·6068927	10·0951020	937	9·9048980	27
34	9·7750697	1702	10·2249303	9·2941041	9·8702653	2640	10·1297347	9·6066417	10·0951957	937	9·9048043	26
35	9·7752399	1702	10·2247601	9·2944863	9·8705293	2640	10·1294707	9·6063907	10·0952894	938	9·9047106	25
36	9·7754101	1700	10·2245899	9·2948684	9·8707933	2639	10·1292067	9·6061396	10·0953832	938	9·9046168	24
37	9·7755801	1700	10·2244199	9·2952503	9·8710572	2638	10·1289428	9·6058883	10·0954770	939	9·9045230	23
38	9·7757501	1698	10·2242499	9·2956320	9·8713210	2638	10·1286790	9·6056370	10·0955709	940	9·9044291	22
39	9·7759199	1698	10·2240801	9·2960136	9·8715848	2638	10·1284152	9·6053856	10·0956649	940	9·9043351	21
40	9·7760897	1696	10·2239103	9·2963949	9·8718486	2637	10·1281514	9·6051341	10·0957589	941	9·9042411	20
41	9·7762593	1696	10·2237407	9·2967760	9·8721123	2637	10·1278877	9·6048825	10·0958530	941	9·9041470	19
42	9·7764289	1694	10·2235711	9·2971570	9·8723760	2636	10·1276240	9·6046308	10·0959471	942	9·9040529	18
43	9·7765983	1693	10·2234017	9·2975376	9·8726396	2636	10·1273604	9·6043791	10·0960413	943	9·9039587	17
44	9·7767676	1693	10·2232324	9·2979184	9·8729032	2636	10·1270968	9·6041272	10·0961356	943	9·9038644	16
45	9·7769369	1691	10·2230631	9·2982988	9·8731668	2634	10·1268332	9·6038752	10·0962299	944	9·9037701	15
46	9·7771060	1690	10·2228940	9·2986790	9·8734302	2635	10·1265698	9·6036232	10·0963243	944	9·9036757	14
47	9·7772750	1689	10·2227250	9·2990591	9·8736937	2634	10·1263063	9·6033710	10·0964187	945	9·9035813	13
48	9·7774439	1689	10·2225561	9·2994389	9·8739571	2633	10·1260429	9·6031188	10·0965132	945	9·9034868	12
49	9·7776128	1687	10·2223872	9·2998186	9·8742204	2634	10·1257796	9·6028665	10·0966077	946	9·9033923	11
50	9·7777815	1686	10·2222185	9·3001981	9·8744838	2632	10·1255162	9·6026141	10·0967023	946	9·9032977	10
51	9·7779501	1685	10·2220499	9·3005774	9·8747470	2632	10·1252530	9·6023616	10·0967969	947	9·9032031	9
52	9·7781186	1684	10·2218814	9·3009565	9·8750102	2632	10·1249898	9·6021090	10·0968916	948	9·9031084	8
53	9·7782870	1683	10·2217130	9·3013355	9·8752734	2631	10·1247266	9·6018563	10·0969864	948	9·9030136	7
54	9·7784553	1682	10·2215447	9·3017142	9·8755365	2631	10·1244635	9·6016035	10·0970812	949	9·9029188	6
55	9·7786235	1681	10·2213765	9·3020928	9·8757996	2631	10·1242004	9·6013506	10·0971761	950	9·9028239	5
56	9·7787916	1680	10·2212084	9·3024712	9·8760627	2630	10·1239373	9·6010977	10·0972711	950	9·9027289	4
57	9·7789596	1679	10·2210404	9·3028494	9·8763257	2629	10·1236743	9·6008446	10·0973661	950	9·9026339	3
58	9·7791275	1678	10·2208725	9·3032274	9·8765886	2629	10·1234114	9·6005914	10·0974611	951	9·9025389	2
59	9·7792953	1677	10·2207047	9·3036052	9·8768515	2629	10·1231485	9·6003382	10·0975562	952	9·9024438	1
60	9·7794630		10·2205370	9·3039829	9·8771144		10·1228856	9·6000849	10·0976514		9·9023486	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	'
0	6018150	2323	3981850	1·6616401	7535541	1·3270448	1·2521357	2013645	1751	[illegible]	60
1	6020473	2322	3979527	1·6609990	7540102	1·3262420	1·2524102	2015396	1751	7984064	59
2	6022795	2322	3977205	1·6603586	7544666	1·3254397	1·2526850	2017147	1753	[illegible]	58
3	6025117	2322	3974883	1·6597187	7549232	1·3246381	1·2529601	2018900	1753	[illegible]	57
4	6027439	2321	3972561	1·6590795	7553799	1·3238371	1·2532353	2020653	1753	7979347	56
5	6029760	2320	3970240	1·6584409	7558369	1·3230368	1·2535108	2022406	1755	[illegible]	55
6	6032080	2320	3967920	1·6578030	7562941	1·3222370	1·2537865	2024161	1755	[illegible]	54
7	6034400	2319	3965600	1·6571657	7567514	1·3214379	1·2540625	2025916	1755	[illegible]	53
8	6036719	2319	3963281	1·6565290	7572090	1·3206393	1·2543387	2027671	1757	[illegible]	52
9	6039038	2318	3960962	1·6558929	7576668	1·3198414	1·2546151	2029428	1757	[illegible]	51
10	6041356	2318	3958644	1·6552575	7581248	1·3190441	1·2548917	2031185	1757	[illegible]	50
11	6043674	2317	3956326	1·6546227	7585829	1·3182474	1·2551685	2032942	1759	[illegible]	49
12	6045991	2317	3954009	1·6539885	7590413	1·3174513	1·2554446	2034701	1759	[illegible]	48
13	6048308	2316	3951692	1·6533550	7594999	1·3166559	1·2557229	2036460	1760	[illegible]	47
14	6050624	2316	3949376	1·6527221	7599587	1·3158610	1·2560005	2038220	1760	7951780	46
15	6052940	2315	3947060	1·6520898	7604177	1·3150668	1·2562782	2039980	1761	[illegible]	45
16	6055255	2315	3944745	1·6514581	7608769	1·3142731	1·2565562	2041741	1762	[illegible]	44
17	6057570	2314	3942430	1·6508270	7613363	1·3134801	1·2568345	2043504	1762	[illegible]	43
18	6059884	2314	3940116	1·6501966	7617959	1·3126876	1·2571129	2045265	1763	[illegible]	42
19	6062198	2313	3937802	1·6495668	7622557	1·3118958	1·2573916	2047028	1764	[illegible]	41
20	6064511	2313	3935489	1·6489376	7627157	1·3111046	1·2576705	2048792	1764	[illegible]	40
21	6066824	2312	3933176	1·6483096	7631759	1·3103140	1·2579497	2050556	1766	7949444	39
22	6069136	2311	3930864	1·6476811	7636363	1·3095239	1·2582291	2052322	1765	[illegible]	38
23	6071447	2311	3928553	1·6470537	7640969	1·3087345	1·2585087	2054087	1767	[illegible]	37
24	6073758	2311	3926242	1·6464270	7645577	1·3079457	1·2587885	2055854	1767	7944146	36
25	6076069	2310	3923931	1·6458009	7650188	1·3071575	1·2590686	2057621	1768	7942379	35
26	6078379	2310	3921621	1·6451754	7654800	1·3063699	1·2593489	2059389	1768	[illegible]	34
27	6080689	2309	3919311	1·6445506	7659414	1·3055828	1·2596294	2061157	1769	[illegible]	33
28	6082998	2308	3917002	1·6439263	7664031	1·3047964	1·2599102	2062926	1770	[illegible]	32
29	6085306	2308	3914694	1·6433027	7668649	1·3040106	1·2601912	2064696	1771	[illegible]	31
30	6087614	2308	3912386	1·6426796	7673270	1·3032254	1·2604724	2066467	1771	[illegible]	30
31	6089922	2307	3910078	1·6420572	7677893	1·3024407	1·2607539	2068238	1772	[illegible]	29
32	6092229	2306	3907771	1·6414354	7682517	1·3016567	1·2610356	2070010	1772	[illegible]	28
33	6094535	2306	3905465	1·6408142	7687144	1·3008733	1·2613175	2071782	1773	[illegible]	27
34	6096841	2306	3903159	1·6401936	7691773	1·3000904	1·2615997	2073555	1774	[illegible]	26
35	6099147	2305	3900853	1·6395736	7696404	1·2993081	1·2618820	2075329	1775	7924671	25
36	6101452	2304	3898548	1·6389542	7701037	1·2985265	1·2621647	2077104	1775	[illegible]	24
37	6103756	2304	3896244	1·6383355	7705672	1·2977454	1·2624475	2078879	1776	7921121	23
38	6106060	2303	3893940	1·6377173	7710309	1·2969649	1·2627306	2080655	1776	[illegible]	22
39	6108363	2303	3891637	1·6370997	7714948	1·2961850	1·2630140	2082431	1777	7917569	21
40	6110666	2303	3889334	1·6364828	7719589	1·2954057	1·2632975	2084208	1778	[illegible]	20
41	6112969	2301	3887031	1·6358664	7724233	1·2946270	1·2635813	2085986	1779	7914014	19
42	6115270	2302	3884730	1·6352507	7728878	1·2938488	1·2638653	2087765	1779	7912233	18
43	6117572	2301	3882428	1·6346355	7733526	1·2930713	1·2641496	2089544	1780	7910450	17
44	6119873	2300	3880127	1·6340210	7738176	1·2922943	1·2644341	2091324	1780	[illegible]	16
45	6122173	2300	3877827	1·6334070	7742827	1·2915179	1·2647188	2093104	1781	[illegible]	15
46	6124473	2299	3875527	1·6327937	7747481	1·2907421	1·2650014	2094885	1782	[illegible]	14
47	6126772	2299	3873228	1·6321809	7752137	1·2899669	1·2652890	2096667	1783	[illegible]	13
48	6129071	2298	3870929	1·6315688	7756795	1·2891922	1·2655745	2098450	1783	7901550	12
49	6131369	2297	3868631	1·6309572	7761455	1·2884182	1·2658601	2100233	1784	[illegible]	11
50	6133666	2298	3866334	1·6303462	7766118	1·2876447	1·2661460	2102017	1785	[illegible]	10
51	6135964	2296	3864036	1·6297359	7770782	1·2868718	1·2664322	2103802	1785	[illegible]	9
52	6138260	2296	3861740	1·6291261	7775448	1·2860995	1·2667186	2105587	1786	[illegible]	8
53	6140556	2296	3859444	1·6285169	7780117	1·2853277	1·2670052	2107373	1786	[illegible]	7
54	6142852	2295	3857148	1·6279083	7784788	1·2845566	1·2672921	2109159	1787	7890341	6
55	6145147	2295	3854853	1·6273003	7789460	1·2837860	1·2675792	2110946	1788	[illegible]	5
56	6147442	2294	3852558	1·6266929	7794135	1·2830160	1·2678665	2112734	1789	[illegible]	4
57	6149736	2293	3850264	1·6260861	7798812	1·2822465	1·2681541	2114523	1789	[illegible]	3
58	6152029	2293	3847971	1·6254799	7803492	1·2814776	1·2684419	2116312	1790	[illegible]	2
59	6154322	2293	3845678	1·6248743	7808173	1·2807094	1·2687299	2118102	1790	[illegible]	1
60	6156615		3843385	1·6242692	7812856	1·2799416	1·2690182	2119892		[illegible]	0
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	'

'	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	D.	Cosine
0	9·7794630	1676	10·2205370	9·3039829	9·8771144	2628	10·1228856	9·6000849	10·0976514	952	9·9023486
1	9·7796306	1675	10·2203694	9·3043604	9·8773772	2628	10·1226228	9·5998314	10·0977466	953	9·9022534
2	9·7797981	1674	10·2202019	9·3047376	9·8776400	2627	10·1223600	9·5995779	10·0978419	953	9·9021581
3	9·7799655	1673	10·2200345	9·3051146	9·8779027	2627	10·1220973	9·5993243	10·0979372	954	9·9020628
4	9·7801328	1672	10·2198672	9·3054917	9·8781654	2627	10·1218346	9·5990706	10·0980326	955	9·9019674
5	9·7803000	1671	10·2197000	9·3058684	9·8784281	2626	10·1215719	9·5988168	10·0981281	955	9·9018719
6	9·7804671	1670	10·2195329	9·3062450	9·8786907	2626	10·1213093	9·5985629	10·0982236	956	9·9017764
7	9·7806341	1669	10·2193659	9·3066214	9·8789533	2625	10·1210467	9·5983089	10·0983192	956	9·9016808
8	9·7808010	1667	10·2191990	9·3069976	9·8792158	2624	10·1207842	9·5980549	10·0984148	957	9·9015852
9	9·7809677	1667	10·2190323	9·3073736	9·8794782	2625	10·1205218	9·5978007	10·0985105	957	9·9014895
10	9·7811344	1666	10·2188656	9·3077494	9·8797407	2624	10·1202593	9·5975464	10·0986062	958	9·9013938
11	9·7813010	1665	10·2186990	9·3081251	9·8800031	2623	10·1199969	9·5972921	10·0987020	959	9·9012980
12	9·7814675	1664	10·2185325	9·3085006	9·8802654	2623	10·1197346	9·5970376	10·0987979	959	9·9012021
13	9·7816339	1663	10·2183661	9·3088759	9·8805277	2623	10·1194723	9·5967831	10·0988938	960	9·9011062
14	9·7818002	1662	10·2181998	9·3092510	9·8807900	2622	10·1192100	9·5965285	10·0989898	960	9·9010102
15	9·7819664	1660	10·2180336	9·3096259	9·8810522	2622	10·1189478	9·5962737	10·0990858	961	9·9009142
16	9·7821324	1660	10·2178676	9·3100007	9·8813144	2621	10·1186856	9·5960189	10·0991819	962	9·9008181
17	9·7822984	1659	10·2177016	9·3103752	9·8815765	2621	10·1184235	9·5957640	10·0992781	962	9·9007219
18	9·7824643	1658	10·2175357	9·3107496	9·8818386	2621	10·1181614	9·5955090	10·0993743	963	9·9006257
19	9·7826301	1657	10·2173699	9·3111238	9·8821007	2620	10·1178993	9·5952539	10·0994706	963	9·9005294
20	9·7827958	1656	10·2172042	9·3114979	9·8823627	2619	10·1176373	9·5949987	10·0995669	964	9·9004331
21	9·7829614	1654	10·2170386	9·3118717	9·8826246	2620	10·1173754	9·5947434	10·0996633	964	9·9003367
22	9·7831268	1654	10·2168732	9·3122454	9·8828866	2618	10·1171134	9·5944881	10·0997597	965	9·9002403
23	9·7832922	1653	10·2167078	9·3126189	9·8831484	2619	10·1168516	9·5942326	10·0998562	966	9·9001438
24	9·7834575	1652	10·2165425	9·3129922	9·8834103	2618	10·1165897	9·5939770	10·0999528	966	9·9000472
25	9·7836227	1651	10·2163773	9·3133654	9·8836721	2617	10·1163279	9·5937214	10·1000494	967	9·8999506
26	9·7837878	1650	10·2162122	9·3137383	9·8839338	2618	10·1160662	9·5934656	10·1001461	967	9·8998539
27	9·7839528	1649	10·2160472	9·3141111	9·8841956	2616	10·1158044	9·5932098	10·1002428	968	9·8997572
28	9·7841177	1647	10·2158823	9·3144837	9·8844572	2617	10·1155428	9·5929538	10·1003396	968	9·8996604
29	9·7842824	1647	10·2157176	9·3148561	9·8847189	2616	10·1152811	9·5926978	10·1004364	969	9·8995636
30	9·7844471	1646	10·2155529	9·3152284	9·8849805	2615	10·1150195	9·5924417	10·1005333	970	9·8994667
31	9·7846117	1645	10·2153883	9·3156005	9·8852420	2615	10·1147580	9·5921854	10·1006303	970	9·8993697
32	9·7847762	1644	10·2152238	9·3159724	9·8855035	2615	10·1144965	9·5919291	10·1007273	971	9·8992727
33	9·7849406	1643	10·2150594	9·3163441	9·8857650	2614	10·1142350	9·5916727	10·1008244	972	9·8991756
34	9·7851049	1642	10·2148951	9·3167156	9·8860264	2614	10·1139736	9·5914162	10·1009216	972	9·8990784
35	9·7852691	1641	10·2147309	9·3170870	9·8862878	2614	10·1137122	9·5911596	10·1010188	972	9·8989812
36	9·7854332	1640	10·2145668	9·3174582	9·8865492	2613	10·1134508	9·5909029	10·1011160	973	9·8988840
37	9·7855972	1639	10·2144028	9·3178292	9·8868105	2613	10·1131895	9·5906461	10·1012133	974	9·8987867
38	9·7857611	1638	10·2142389	9·3182000	9·8870718	2612	10·1129282	9·5903893	10·1013107	974	9·8986893
39	9·7859249	1637	10·2140751	9·3185706	9·8873330	2612	10·1126670	9·5901323	10·1014081	975	9·8985919
40	9·7860886	1636	10·2139114	9·3189411	9·8875942	2612	10·1124058	9·5898752	10·1015056	976	9·8984944
41	9·7862522	1635	10·2137478	9·3193114	9·8878554	2611	10·1121446	9·5896181	10·1016032	976	9·8983968
42	9·7864157	1634	10·2135843	9·3196815	9·8881163	2610	10·1118835	9·5893608	10·1017008	977	9·8982992
43	9·7865791	1633	10·2134209	9·3200515	9·8883775	2611	10·1116225	9·5891034	10·1017985	977	9·8982015
44	9·7867424	1632	10·2132576	9·3204213	9·8886386	2610	10·1113614	9·5888460	10·1018962	978	9·8981038
45	9·7869056	1631	10·2130944	9·3207909	9·8888996	2609	10·1111004	9·5885885	10·1019940	978	9·8980060
46	9·7870687	1630	10·2129313	9·3211603	9·8891605	2609	10·1108395	9·5883308	10·1020918	979	9·8979082
47	9·7872317	1629	10·2127683	9·3215295	9·8894214	2609	10·1105786	9·5880731	10·1021897	980	9·8978103
48	9·7873946	1628	10·2126054	9·3218986	9·8896823	2609	10·1103177	9·5878153	10·1022877	980	9·8977123
49	9·7875574	1628	10·2124426	9·3222675	9·8899432	2608	10·1100568	9·5875573	10·1023857	981	9·8976143
50	9·7877202	1626	10·2122798	9·3226362	9·8902040	2607	10·1097960	9·5872993	10·1024838	981	9·8975162
51	9·7878828	1625	10·2121172	9·3230048	9·8904647	2607	10·1095353	9·5870412	10·1025819	982	9·8974181
52	9·7880453	1624	10·2119547	9·3233731	9·8907254	2607	10·1092746	9·5867830	10·1026801	983	9·8973199
53	9·7882077	1624	10·2117923	9·3237413	9·8909861	2607	10·1090139	9·5865247	10·1027784	983	9·8972216
54	9·7883701	1622	10·2116299	9·3241094	9·8912468	2606	10·1087532	9·5862663	10·1028767	984	9·8971233
55	9·7885323	1621	10·2114677	9·3244772	9·8915074	2605	10·1084926	9·5860078	10·1029751	984	9·8970249
56	9·7886944	1621	10·2113056	9·3248449	9·8917679	2606	10·1082321	9·5857492	10·1030735	985	9·8969265
57	9·7888565	1619	10·2111435	9·3252124	9·8920285	2605	10·1079715	9·5854905	10·1031720	986	9·8968280
58	9·7890184	1618	10·2109816	9·3255797	9·8922890	2604	10·1077110	9·5852318	10·1032706	986	9·8967294
59	9·7891802	1618	10·2108198	9·3259469	9·8925494	2604	10·1074506	9·5849729	10·1033692	987	9·8966308
60	9·7893420		10·2106580	9·3263138	9·8928098		10·1071902	9·5847139	10·1034679		9·8965321
'	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	D.	Sine

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	6156615	2292	3843385	1·6242692	7812856	1·2799416	1·2690182	2119892	1792	·7880108	60
1	6158907	2291	3841093	1·6236648	7817542	1·2791745	1·2693067	2121684	1792	7878316	59
2	6161198	2291	3838802	1·6230609	7822229	1·2784079	1·2695955	2123476	1792	7876524	58
3	6163489	2291	3836511	1·6224576	7826919	1·2776419	1·2698845	2125268	1793	7874732	57
4	6165780	2289	3834220	1·6218549	7831611	1·2768765	1·2701737	2127061	1794	7872939	56
5	6168069	2290	3831931	1·6212528	7836305	1·2761116	1·2704632	2128855	1795	7871145	55
6	6170359	2289	3829641	1·6206513	7841002	1·2753473	1·2707529	2130650	1795	7869350	54
7	6172648	2288	3827352	1·6200504	7845700	1·2745835	1·2710429	2132445	1796	7867555	53
8	6174936	2288	3825064	1·6194500	7850401	1·2738204	1·2713331	2134241	1796	7865759	52
9	6177224	2287	3822776	1·6188502	7855103	1·2730578	1·2716235	2136037	1797	7863963	51
10	6179511	2287	3820489	1·6182510	7859808	1·2722957	1·2719142	2137834	1798	7862166	50
11	6181798	2286	3818202	1·6176524	7864515	1·2715342	1·2722052	2139632	1798	7860368	49
12	6184084	2286	3815916	1·6170544	7869224	1·2707733	1·2724963	2141431	1799	7858569	48
13	6186370	2285	3813630	1·6164569	7873935	1·2700130	1·2727877	2143230	1800	7856770	47
14	6188655	2284	3811345	1·6158600	7878649	1·2692532	1·2730794	2145030	1801	7854970	46
15	6190939	2285	3809061	1·6152637	7883364	1·2684940	1·2733712	2146831	1801	7853169	45
16	6193224	2283	3806776	1·6146680	7888082	1·2677353	1·2736634	2148632	1802	7851368	44
17	6195507	2283	3804493	1·6140728	7892802	1·2669772	1·2739557	2150434	1802	7849566	43
18	6197790	2283	3802210	1·6134783	7897524	1·2662196	1·2742484	2152236	1803	7847764	42
19	6200073	2282	3799927	1·6128843	7902248	1·2654626	1·2745412	2154039	1804	7845961	41
20	6202355	2281	3797645	1·6122908	7906975	1·2647062	1·2748343	2155843	1805	7844157	40
21	6204636	2281	3795364	1·6116980	7911703	1·2639503	1·2751276	2157648	1805	7842352	39
22	6206917	2281	3793083	1·6111057	7916434	1·2631950	1·2754212	2159453	1806	7840547	38
23	6209198	2280	3790802	1·6105140	7921167	1·2624402	1·2757151	2161259	1806	7838741	37
24	6211478	2279	3788522	1·6099228	7925902	1·2616860	1·2760091	2163065	1808	7836935	36
25	6213757	2279	3786243	1·6093323	7930640	1·2609323	1·2763034	2164873	1807	7835127	35
26	6216036	2278	3783964	1·6087423	7935379	1·2601792	1·2765980	2166680	1809	7833320	34
27	6218314	2278	3781686	1·6081528	7940121	1·2594267	1·2768928	2168489	1809	7831511	33
28	6220592	2278	3779408	1·6075640	7944866	1·2586747	1·2771878	2170298	1810	7829702	32
29	6222870	2276	3777130	1·6069757	7949611	1·2579232	1·2774831	2172108	1810	7827892	31
30	6225146	2277	3774854	1·6063879	7954359	1·2571723	1·2777787	2173918	1812	7826082	30
31	6227423	2275	3772577	1·6058008	7959110	1·2564219	1·2780744	2175730	1811	7824270	29
32	6229698	2276	3770302	1·6052142	7963862	1·2556721	1·2783705	2177541	1813	7822459	28
33	6231974	2274	3768026	1·6046281	7968617	1·2549229	1·2786667	2179354	1813	7820646	27
34	6234248	2274	3765752	1·6040426	7973374	1·2541742	1·2789632	2181167	1814	7818833	26
35	6236522	2274	3763478	1·6034577	7978134	1·2534260	1·2792600	2182981	1814	7817019	25
36	6238796	2273	3761204	1·6028734	7982895	1·2526784	1·2795570	2184795	1815	7815205	24
37	6241069	2273	3758931	1·6022896	7987659	1·2519313	1·2798543	2186610	1816	7813390	23
38	6243342	2272	3756658	1·6017064	7992425	1·2511848	1·2801518	2188426	1817	7811574	22
39	6245614	2271	3754386	1·6011237	7997193	1·2504388	1·2804495	2190243	1817	7809757	21
40	6247885	2271	3752115	1·6005416	8001963	1·2496933	1·2807475	2192060	1817	7807940	20
41	6250156	2271	3749844	1·5999600	8006736	1·2489484	1·2810457	2193877	1819	7806123	19
42	6252427	2269	3747573	1·5993790	8011511	1·2482040	1·2813442	2195696	1819	7804304	18
43	6254696	2270	3745304	1·5987986	8016288	1·2474602	1·2816430	2197515	1820	7802485	17
44	6256966	2269	3743034	1·5982187	8021067	1·2467169	1·2819419	2199335	1820	7800665	16
45	6259235	2268	3740765	1·5976394	8025849	1·2459742	1·2822412	2201155	1821	7798845	15
46	6261503	2268	3738497	1·5970606	8030632	1·2452320	1·2825407	2202976	1822	7797024	14
47	6263771	2267	3736229	1·5964824	8035418	1·2444903	1·2828404	2204798	1822	7795202	13
48	6266038	2267	3733962	1·5959048	8040206	1·2437492	1·2831404	2206620	1823	7793380	12
49	6268305	2266	3731695	1·5953276	8044997	1·2430086	1·2834406	2208443	1824	7791557	11
50	6270571	2266	3729429	1·5947511	8049790	1·2422685	1·2837411	2210267	1824	7789733	10
51	6272837	2265	3727163	1·5941751	8054584	1·2415290	1·2840418	2212091	1825	7787909	9
52	6275102	2264	3724898	1·5935996	8059382	1·2407900	1·2843428	2213916	1826	7786084	8
53	6277366	2265	3722634	1·5930247	8064181	1·2400515	1·2846440	2215742	1827	7784258	7
54	6279631	2263	3720369	1·5924504	8068983	1·2393136	1·2849455	2217569	1827	7782431	6
55	6281894	2263	3718106	1·5918766	8073787	1·2385762	1·2852472	2219396	1827	7780604	5
56	6284157	2263	3715843	1·5913033	8078593	1·2378393	1·2855492	2221223	1828	7778777	4
57	6286420	2262	3713580	1·5907306	8083401	1·2371030	1·2858514	2223051	1829	7776949	3
58	6288682	2261	3711318	1·5901584	8088212	1·2363672	1·2861539	2224880	1830	7775120	2
59	6290943	2261	3709057	1·5895868	8093025	1·2356319	1·2864566	2226710	1830	7773290	1
60	6293204		3706796	1·5890157	8097840	1·2348972	1·2867596	2228540		7771460	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	Dif.	Cosine	′
1616	10·2106580	9·3263138	9·8928098	2604	10·1071902	9·5847139	10·1034679	987	9·8965321	60
1616	10·2104964	9·3266806	9·8930702	2604	10·1069298	9·5844549	10·1035666	988	9·8964334	59
1614	10·2103348	9·3270473	9·8933306	2603	10·1066694	9·5841957	10·1036654	988	9·8963346	58
1614	10·2101734	9·3274137	9·8935909	2602	10·1064091	9·5839364	10·1037642	989	9·8962358	57
1613	10·2100120	9·3277800	9·8938511	2603	10·1061489	9·5836771	10·1038631	990	9·8961369	56
1611	10·2098507	9·3281461	9·8941114	2601	10·1058886	9·5834176	10·1039621	990	9·8960379	55
1611	10·2096896	9·3285121	9·8943715	2602	10·1056285	9·5831581	10·1040611	991	9·8959389	54
1610	10·2095285	9·3288778	9·8946317	2601	10·1053683	9·5828985	10·1041602	992	9·8958398	53
1608	10·2093675	9·3292434	9·8948918	2601	10·1051082	9·5826387	10·1042594	992	9·8957406	52
1608	10·2092067	9·3296089	9·8951519	2600	10·1048481	9·5823789	10·1043586	992	9·8956414	51
1607	10·2090459	9·3299741	9·8954119	2600	10·1045881	9·5821190	10·1044578	993	9·8955422	50
1606	10·2088852	9·3303392	9·8956719	2600	10·1043281	9·5818589	10·1045571	994	9·8954429	49
1605	10·2087246	9·3307041	9·8959319	2599	10·1040681	9·5815988	10·1046565	995	9·8953435	48
1604	10·2085641	9·3310688	9·8961918	2599	10·1038082	9·5813386	10·1047560	995	9·8952440	47
1603	10·2084037	9·3314334	9·8964517	2599	10·1035483	9·5810783	10·1048555	995	9·8951445	46
1602	10·2082434	9·3317978	9·8967116	2598	10·1032884	9·5808179	10·1049550	997	9·8950450	45
1601	10·2080832	9·3321620	9·8969714	2598	10·1030286	9·5805574	10·1050547	996	9·8949453	44
1600	10·2079231	9·3325261	9·8972312	2598	10·1027688	9·5802968	10·1051543	998	9·8948457	43
1599	10·2077631	9·3328900	9·8974910	2597	10·1025090	9·5800361	10·1052541	998	9·8947459	42
1598	10·2076032	9·3332537	9·8977507	2597	10·1022493	9·5797753	10·1053539	998	9·8946461	41
1597	10·2074434	9·3336172	9·8980104	2596	10·1019896	9·5795144	10·1054537	1000	9·8945463	40
1597	10·2072837	9·3339806	9·8982700	2596	10·1017300	9·5792534	10·1055537	999	9·8944463	39
1595	10·2071240	9·3343438	9·8985296	2596	10·1014704	9·5789923	10·1056536	1001	9·8943464	38
1594	10·2069645	9·3347068	9·8987892	2595	10·1012108	9·5787311	10·1057537	1001	9·8942463	37
1594	10·2068051	9·3350697	9·8990487	2595	10·1009513	9·5784698	10·1058538	1001	9·8941462	36
1592	10·2066457	9·3354323	9·8993082	2595	10·1006918	9·5782085	10·1059539	1003	9·8940461	35
1592	10·2064865	9·3357949	9·8995677	2594	10·1004323	9·5779470	10·1060542	1002	9·8939458	34
1590	10·2063273	9·3361572	9·8998271	2594	10·1001729	9·5776854	10·1061544	1004	9·8938456	33
1590	10·2061683	9·3365194	9·9000865	2594	10·0999135	9·5774237	10·1062548	1004	9·8937452	32
1589	10·2060093	9·3368814	9·9003459	2593	10·0996541	9·5771620	10·1063552	1004	9·8936448	31
1587	10·2058504	9·3372432	9·9006052	2593	10·0993948	9·5769001	10·1064556	1005	9·8935444	30
1587	10·2056917	9·3376049	9·9008645	2592	10·0991355	9·5766382	10·1065561	1006	9·8934439	29
1586	10·2055330	9·3379664	9·9011237	2593	10·0988763	9·5763761	10·1066567	1007	9·8933433	28
1585	10·2053744	9·3383278	9·9013830	2592	10·0986170	9·5761139	10·1067574	1007	9·8932426	27
1584	10·2052159	9·3386889	9·9016422	2591	10·0983578	9·5758517	10·1068581	1007	9·8931419	26
1583	10·2050575	9·3390499	9·9019013	2591	10·0980987	9·5755894	10·1069588	1008	9·8930412	25
1582	10·2048992	9·3394107	9·9021604	2591	10·0978396	9·5753269	10·1070596	1009	9·8929404	24
1581	10·2047410	9·3397714	9·9024195	2591	10·0975805	9·5750643	10·1071605	1010	9·8928395	23
1580	10·2045829	9·3401319	9·9026786	2590	10·0973214	9·5748017	10·1072615	1010	9·8927385	22
1579	10·2044249	9·3404922	9·9029376	2590	10·0970624	9·5745390	10·1073625	1010	9·8926375	21
1579	10·2042670	9·3408524	9·9031966	2589	10·0968034	9·5742761	10·1074635	1011	9·8925365	20
1577	10·2041091	9·3412124	9·9034555	2589	10·0965445	9·5740132	10·1075646	1012	9·8924354	19
1576	10·2039514	9·3415722	9·9037144	2589	10·0962856	9·5737502	10·1076658	1013	9·8923342	18
1576	10·2037938	9·3419319	9·9039733	2588	10·0960267	9·5734870	10·1077671	1013	9·8922329	17
1574	10·2036362	9·3422913	9·9042321	2589	10·0957679	9·5732238	10·1078684	1013	9·8921316	16
1574	10·2034788	9·3426507	9·9044910	2587	10·0955090	9·5729605	10·1079697	1014	9·8920303	15
1573	10·2033214	9·3430098	9·9047497	2588	10·0952503	9·5726970	10·1080711	1015	9·8919289	14
1571	10·2031641	9·3433688	9·9050085	2587	10·0949915	9·5724335	10·1081726	1016	9·8918274	13
1571	10·2030070	9·3437276	9·9052672	2587	10·0947328	9·5721698	10·1082742	1016	9·8917258	12
570	10·2028499	9·3440863	9·9055259	2586	10·0944741	9·5719062	10·1083758	1016	9·8916242	11
569	10·2026929	9·3444448	9·9057845	2586	10·0942155	9·5716423	10·1084774	1018	9·8915226	10
568	10·2025360	9·3448031	9·9060431	2586	10·0939569	9·5713784	10·1085792	1017	9·8914208	9
567	10·2023792	9·3451612	9·9063017	2586	10·0936983	9·5711144	10·1086809	1019	9·8913191	8
566	10·2022225	9·3455192	9·9065603	2585	10·0934397	9·5708503	10·1087828	1019	9·8912172	7
565	10·2020659	9·3458770	9·9068188	2585	10·0931812	9·5705861	10·1088847	1020	9·8911153	6
1564	10·2019094	9·3462347	9·9070773	2584	10·0929227	9·5703218	10·1089867	1020	9·8910133	5
564	10·2017530	9·3465922	9·9073357	2584	10·0926643	9·5700573	10·1090887	1021	9·8909113	4
562	10·2015966	9·3469495	9·9075941	2584	10·0924059	9·5697928	10·1091908	1021	9·8908092	3
562	10·2014404	9·3473067	9·9078525	2584	10·0921475	9·5695282	10·1092929	1022	9·8907071	2
560	10·2012842	9·3476637	9·9081109	2583	10·0918891	9·5692635	10·1093951	1023	9·8906049	1
	10·2011282	9·3480205	9·9083692		10·0916308	9·5689987	10·1094974		9·8905026	0
Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	′

'	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine
0	6293204	2260	3706796	1·5890157	8097840	1·2348972	1·2867596	2228540	1831	7771460
1	6295464	2260	3704536	1·5884452	8102658	1·2341629	1·2870628	2230371	1832	7769629
2	6297724	2259	3702276	1·5878752	8107478	1·2334292	1·2873663	2232203	1832	7767797
3	6299983	2259	3700017	1·5873058	8112300	1·2326961	1·2876700	2234035	1833	7765965
4	6302242	2258	3697758	1·5867369	8117124	1·2319634	1·2879740	2235868	1834	7764132
5	6304500	2258	3695500	1·5861685	8121951	1·2312313	1·2882782	2237702	1834	7762298
6	6306758	2257	3693242	1·5856007	8126780	1·2304997	1·2885827	2239536	1835	7760464
7	6309015	2257	3690985	1·5850374	8131611	1·2297687	1·2888875	2241371	1835	7758629
8	6311272	2256	3688728	1·5844667	8136444	1·2290381	1·2891925	2243206	1837	7756794
9	6313528	2256	3686472	1·5839005	8141280	1·2283081	1·2894977	2245043	1836	7754957
10	6315784	2255	3684216	1·5833348	8146118	1·2275786	1·2898032	2246879	1838	7753121
11	6318039	2254	3681961	1·5827697	8150958	1·2268496	1·2901090	2248717	1838	7751283
12	6320293	2254	3679707	1·5822051	8155801	1·2261211	1·2904150	2250555	1839	7749445
13	6322547	2253	3677453	1·5816411	8160646	1·2253932	1·2907213	2252394	1839	7747606
14	6324800	2253	3675200	1·5810776	8165493	1·2246658	1·2910278	2254233	1841	7745767
15	6327053	2253	3672947	1·5805146	8170343	1·2239389	1·2913346	2256074	1840	7743926
16	6329306	2251	3670694	1·5799521	8175195	1·2232125	1·2916416	2257914	1842	7742086
17	6331557	2252	3668443	1·5793902	8180049	1·2224866	1·2919489	2259756	1842	7740244
18	6333809	2250	3666191	1·5788289	8184905	1·2217613	1·2922564	2261598	1843	7738402
19	6336059	2251	3663941	1·5782680	8189764	1·2210364	1·2925642	2263441	1843	7736559
20	6338310	2249	3661690	1·5777077	8194625	1·2203121	1·2928723	2265284	1844	7734716
21	6340559	2249	3659441	1·5771479	8199488	1·2195883	1·2931806	2267128	1844	[illegible]
22	6342808	2249	3657192	1·5765887	8204354	1·2188650	1·2934892	2268973	1845	[illegible]
23	6345057	2248	3654943	1·5760300	8209222	1·2181422	1·2937980	2270818	1846	[illegible]
24	6347305	2248	3652695	1·5754718	8214093	1·2174199	1·2941071	2272664	1847	[illegible]
25	6349553	2247	3650447	1·5749141	8218965	1·2166982	1·2944164	2274511	1847	[illegible]
26	6351800	2246	3648200	1·5743570	8223840	1·2159769	1·2947260	2276358	1848	[illegible]
27	6354046	2246	3645954	1·5738004	8228718	1·2152562	[illegible]	2278206	1849	[illegible]
28	6356292	2245	3643708	1·5732443	8233597	1·2145359	1·2953460	2280055	1849	[illegible]
29	6358537	2245	3641463	1·5726887	8238479	1·2138162	1·2956564	2281904	1850	[illegible]
30	6360782	2244	3639218	1·5721337	8243364	1·2130970	1·2959670	2283754	1851	[illegible]
31	6363026	2244	3636974	1·5715792	8248251	1·2123783	1·2962779	2285605	1851	[illegible]
32	6365270	2243	3634730	1·5710252	8253140	1·2116601	1·2965890	2287456	1852	[illegible]
33	6367513	2243	3632487	1·5704717	8258031	1·2109424	1·2969004	2289308	1852	[illegible]
34	6369756	2242	3630244	1·5699188	8262925	1·2102252	1·2972121	2291160	1854	[illegible]
35	6371998	2242	3628002	1·5693664	8267821	1·2095085	1·2975240	2293014	1854	[illegible]
36	6374240	2241	3625760	1·5688145	8272719	1·2087924	1·2978362	2294868	1854	[illegible]
37	6376481	2240	3623519	1·5682631	8277620	1·2080767	1·2981487	2296722	1855	[illegible]
38	6378721	2240	3621279	1·5677123	8282523	1·2073615	1·2984614	2298577	1856	[illegible]
39	6380961	2240	3619039	1·5671619	8287429	1·2066468	1·2987743	2300433	1857	[illegible]
40	6383201	2239	3616799	1·5666121	8292337	1·2059327	1·2990876	2302290	1857	[illegible]
41	6385440	2238	3614560	1·5660628	8297247	1·2052190	1·2994011	2304147	1857	[illegible]
42	6387678	2238	3612322	1·5655141	8302160	1·2045058	1·2997148	2306004	1859	[illegible]
43	6389916	2237	3610084	1·5649658	8307075	1·2037932	1·3000288	2307863	1859	[illegible]
44	6392153	2237	3607847	1·5644181	8311992	1·2030810	1·3003431	2309722	1860	[illegible]
45	6394390	2236	3605610	1·5638708	8316912	1·2023693	1·3006576	2311582	1860	[illegible]
46	6396626	2236	3603374	1·5633241	8321834	1·2016581	1·3009724	2313442	1861	[illegible]
47	6398862	2235	3601138	1·5627779	8326759	1·2009475	1·3012875	2315303	1862	[illegible]
48	6401097	2235	3598903	1·5622322	8331686	1·2002373	1·3016028	2317165	1862	[illegible]
49	6403332	2234	3596668	1·5616871	8336615	1·1995276	1·3019184	2319027	1863	[illegible]
50	6405566	2233	3594434	1·5611424	8341547	1·1988184	1·3022343	2320890	1864	[illegible]
51	6407799	2233	3592201	1·5605982	8346481	1·1981097	1·3025504	2322754	1864	[illegible]
52	6410032	2232	3589968	1·5600546	8351418	1·1974015	1·3028667	2324618	1865	[illegible]
53	6412264	2232	3587736	1·5595115	8356357	1·1966938	1·3031834	2326483	1865	[illegible]
54	6414496	2232	3585504	1·5589688	8361298	1·1959866	1·3035003	2328348	1867	[illegible]
55	6416728	2230	3583272	1·5584268	8366242	1·1952799	1·3038175	2330215	1867	[illegible]
56	6418958	2231	3581042	1·5578852	8371188	1·1945736	1·3041349	2332082	1867	[illegible]
57	6421189	2229	3578811	1·5573441	8376136	1·1938679	1·3044526	2333949	1868	[illegible]
58	6423418	2229	3576582	1·5568035	8381087	1·1931626	1·3047706	2335817	1869	[illegible]
59	6425647	2229	3574353	1·5562634	8386041	1·1924579	1·3050888	2337686	1870	[illegible]
60	6427876		3572124	1·5557238	8390996	1·1917536	1·3054073	2339556		[illegible]
'	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	Dif.	Cosine	′
0	9·7988718	1560	10·2011282	9·3480205	9·9083692	2583	10·0916308	9·5689947	10·1094974	1023	9·8905026	60
1	9·7990278	1558	10·2009722	9·3483772	9·9086275	2583	10·0913725	9·5687338	10·1095997	1024	9·8904003	59
2	9·7991836	1558	10·2008164	9·3487337	9·9088858	2582	10·0911142	9·5684688	10·1097021	1025	9·8902979	58
3	9·7993394	1557	10·2006606	9·3490900	9·9091440	2582	10·0908560	9·5682037	10·1098046	1025	9·8901954	57
4	9·7994951	1556	10·2005049	9·3494462	9·9094022	2581	10·0905978	9·5679385	10·1099071	1026	9·8900929	56
5	9·7996507	1555	10·2003493	9·3498022	9·9096603	2582	10·0903397	9·5676732	10·1100097	1026	9·8899903	55
6	9·7998062	1554	10·2001938	9·3501580	9·9099185	2581	10·0900815	9·5674078	10·1101123	1027	9·8898877	54
7	9·7999616	1553	10·2000384	9·3505137	9·9101766	2581	10·0898234	9·5671423	10·1102150	1028	9·8897850	53
8	9·8001169	1552	10·1998831	9·3508692	9·9104347	2580	10·0895653	9·5668766	10·1103178	1028	9·8896822	52
9	9·8002721	1551	10·1997279	9·3512246	9·9106927	2580	10·0893073	9·5666109	10·1104206	1029	9·8895794	51
10	9·8004272	1551	10·1995728	9·3515798	9·9109507	2580	10·0890493	9·5663451	10·1105235	1029	9·8894765	50
11	9·8005823	1549	10·1994177	9·3519348	9·9112087	2579	10·0887913	9·5660792	10·1106264	1030	9·8893736	49
12	9·8007372	1549	10·1992628	9·3522897	9·9114666	2579	10·0885334	9·5658132	10·1107294	1031	9·8892706	48
13	9·8008921	1547	10·1991079	9·3526444	9·9117245	2579	10·0882755	9·5655471	10·1108325	1031	9·8891675	47
14	9·8010468	1547	10·1989532	9·3529989	9·9119824	2579	10·0880176	9·5652809	10·1109356	1032	9·8890644	46
15	9·8012015	1546	10·1987985	9·3533533	9·9122403	2578	10·0877597	9·5650146	10·1110388	1032	9·8889612	45
16	9·8013561	1545	10·1986439	9·3537075	9·9124981	2578	10·0875019	9·5647482	10·1111420	1033	9·8888580	44
17	9·8015106	1543	10·1984894	9·3540615	9·9127559	2578	10·0872441	9·5644817	10·1112453	1034	9·8887547	43
18	9·8016649	1543	10·1983351	9·3544154	9·9130137	2577	10·0869863	9·5642151	10·1113487	1034	9·8886513	42
19	9·8018192	1543	10·1981808	9·3547691	9·9132714	2577	10·0867286	9·5639484	10·1114521	1035	9·8885479	41
20	9·8019735	1541	10·1980265	9·3551227	9·9135291	2577	10·0864709	9·5636816	10·1115556	1036	9·8884444	40
21	9·8021276	1540	10·1978724	9·3554761	9·9137868	2576	10·0862132	9·5634147	10·1116592	1036	9·8883408	39
22	9·8022816	1539	10·1977184	9·3558293	9·9140444	2576	10·0859556	9·5631477	10·1117628	1037	9·8882372	38
23	9·8024355	1539	10·1975645	9·3561824	9·9143020	2576	10·0856980	9·5628806	10·1118665	1037	9·8881335	37
24	9·8025894	1537	10·1974106	9·3565353	9·9145596	2575	10·0854404	9·5626134	10·1119702	1038	9·8880298	36
25	9·8027431	1537	10·1972569	9·3568880	9·9148171	2576	10·0851829	9·5623461	10·1120740	1039	9·8879260	35
26	9·8028968	1536	10·1971032	9·3572406	9·9150747	2575	10·0849253	9·5620787	10·1121779	1039	9·8878221	34
27	9·8030504	1534	10·1969496	9·3575930	9·9153322	2574	10·0846678	9·5618112	10·1122818	1040	9·8877182	33
28	9·8032038	1534	10·1967962	9·3579453	9·9155896	2575	10·0844104	9·5615436	10·1123858	1040	9·8876142	32
29	9·8033572	1533	10·1966428	9·3582974	9·9158471	2574	10·0841529	9·5612759	10·1124898	1041	9·8875102	31
30	9·8035105	1532	10·1964895	9·3586494	9·9161045	2573	10·0838955	9·5610080	10·1125939	1042	9·8874061	30
31	9·8036637	1531	10·1963363	9·3590011	9·9163618	2574	10·0836382	9·5607401	10·1126981	1042	9·8873019	29
32	9·8038168	1531	10·1961832	9·3593528	9·9166192	2573	10·0833808	9·5604721	10·1128023	1043	9·8871977	28
33	9·8039699	1529	10·1960301	9·3597042	9·9168765	2573	10·0831235	9·5602040	10·1129066	1044	9·8870934	27
34	9·8041228	1529	10·1958772	9·3600555	9·9171338	2573	10·0828662	9·5599358	10·1130110	1044	9·8869890	26
35	9·8042757	1527	10·1957243	9·3604067	9·9173911	2572	10·0826089	9·5596675	10·1131154	1045	9·8868846	25
36	9·8044284	1527	10·1955716	9·3607576	9·9176483	2572	10·0823517	9·5593991	10·1132199	1045	9·8867801	24
37	9·8045811	1525	10·1954189	9·3611084	9·9179055	2572	10·0820945	9·5591305	10·1133244	1046	9·8866756	23
38	9·8047336	1525	10·1952664	9·3614591	9·9181627	2571	10·0818373	9·5588619	10·1134290	1047	9·8865710	22
39	9·8048861	1524	10·1951139	9·3618096	9·9184198	2571	10·0815802	9·5585932	10·1135337	1047	9·8864663	21
40	9·8050385	1523	10·1949615	9·3621599	9·9186769	2571	10·0813231	9·5583244	10·1136384	1048	9·8863616	20
41	9·8051908	1522	10·1948092	9·3625101	9·9189340	2571	10·0810660	9·5580555	10·1137432	1049	9·8862568	19
42	9·8053430	1521	10·1946570	9·3628601	9·9191911	2570	10·0808089	9·5577864	10·1138481	1049	9·8861519	18
43	9·8054951	1521	10·1945049	9·3632100	9·9194481	2570	10·0805519	9·5575173	10·1139530	1050	9·8860470	17
44	9·8056472	1519	10·1943528	9·3635597	9·9197051	2570	10·0802949	9·5572481	10·1140580	1050	9·8859420	16
45	9·8057991	1519	10·1942009	9·3639092	9·9199621	2570	10·0800379	9·5569787	10·1141630	1051	9·8858370	15
46	9·8059510	1517	10·1940490	9·3642586	9·9202191	2569	10·0797809	9·5567093	10·1142681	1052	9·8857319	14
47	9·8061027	1517	10·1938973	9·3646079	9·9204760	2569	10·0795240	9·5564398	10·1143733	1052	9·8856267	13
48	9·8062544	1516	10·1937456	9·3649569	9·9207329	2569	10·0792671	9·5561701	10·1144785	1053	9·8855215	12
49	9·8064060	1515	10·1935940	9·3653058	9·9209898	2568	10·0790102	9·5559004	10·1145838	1053	9·8854162	11
50	9·8065575	1514	10·1934425	9·3656546	9·9212466	2568	10·0787534	9·5556306	10·1146891	1054	9·8853109	10
51	9·8067089	1513	10·1932911	9·3660032	9·9215034	2568	10·0784966	9·5553606	10·1147945	1055	9·8852055	9
52	9·8068602	1512	10·1931398	9·3663516	9·9217602	2568	10·0782398	9·5550906	10·1149000	1055	9·8851000	8
53	9·8070114	1512	10·1929886	9·3666999	9·9220170	2567	10·0779830	9·5548204	10·1150055	1056	9·8849945	7
54	9·8071626	1510	10·1928374	9·3670480	9·9222737	2567	10·0777263	9·5545502	10·1151111	1057	9·8848889	6
55	9·8073136	1510	10·1926864	9·3673959	9·9225304	2567	10·0774696	9·5542798	10·1152168	1057	9·8847832	5
56	9·8074646	1508	10·1925354	9·3677437	9·9227871	2566	10·0772129	9·5540094	10·1153225	1058	9·8846775	4
57	9·8076154	1508	10·1923846	9·3680914	9·9230437	2567	10·0769563	9·5537388	10·1154283	1058	9·8845717	3
58	9·8077662	1507	10·1922338	9·3684389	9·9233004	2566	10·0766996	9·5534681	10·1155341	1060	9·8844659	2
59	9·8079169	1506	10·1920831	9·3687862	9·9235570	2565	10·0764430	9·5531974	10·1156401	1059	9·8843599	1
60	9·8080675		10·1919325	9·3691334	9·9238136		10·0761865	9·5529265	10·1157460		9·8842540	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	′

′	Sine	Dif	Covers	Cosec.	Tang	Cotang	Secant	Vers.	Dif	Cosine	′
0	6427876	2228	3572124	1·5557238	8390996	1·1917536	1·3054073	2339556	1870	7660444	60
1	6430104	2228	3569896	1·5551846	8395955	1·1910498	1·3057261	2341426	1870	7658574	59
2	6432332	2227	3567668	1·5546462	8400915	1·1903465	1·3060451	2343296	1872	7656704	58
3	6434559	2227	3565441	1·5541081	8405878	1·1896437	1·3063644	2345168	1872	7654832	57
4	6436785	2226	3563215	1·5535706	8410844	1·1889414	1·3066839	2347040	1873	7652960	56
5	6439011	2225	3560989	1·5530345	8415812	1·1882395	1·3070038	2348913	1873	7651087	55
6	6441236	2225	3558764	1·5524970	8420782	1·1875382	1·3073239	2350786	1874	7649214	54
7	6443461	2224	3556539	1·5519610	8425755	1·1868373	1·3076442	2352660	1875	7647340	53
8	6445685	2224	3554315	1·5514254	8430730	1·1861369	1·3079649	2354535	1875	7645465	52
9	6447909	2223	3552091	1·5508904	8435708	1·1854370	1·3082858	2356410	1876	7643590	51
10	6450132	2223	3549868	1·5503558	8440688	1·1847376	1·3086069	2358286	1876	7641714	50
11	6452355	2222	3547645	1·5498218	8445670	1·1840387	1·3089284	2360162	1878	7639838	49
12	6454577	2221	3545423	1·5492882	8450655	1·1833402	1·3092501	2362040	1878	7637960	48
13	6456798	2221	3543202	1·5487552	8455643	1·1826422	1·3095720	2363918	1878	7636082	47
14	6459019	2221	3540981	1·5482226	8460633	1·1819447	1·3098943	2365796	1879	7634204	46
15	6461240	2220	3538760	1·5476906	8465625	1·1812477	1·3102168	2367675	1880	7632325	45
16	6463460	2219	3536540	1·5471590	8470620	1·1805512	1·3105396	2369555	1881	7630445	44
17	6465679	2219	3534321	1·5466280	8475617	1·1798551	1·3108626	2371436	1881	7628564	43
18	6467898	2218	3532102	1·5460974	8480617	1·1791595	1·3111860	2373317	1881	7626683	42
19	6470116	2218	3529884	1·5455673	8485619	1·1784644	1·3115095	2375198	1883	7624802	41
20	6472334	2217	3527666	1·5450378	8490624	1·1777698	1·3118334	2377081	1883	7622919	40
21	6474551	2216	3525449	1·5445087	8495631	1·1770756	1·3121575	2378964	1884	7621036	39
22	6476767	2217	3523233	1·5439801	8500640	1·1763820	1·3124820	2380848	1884	7619152	38
23	6478984	2215	3521016	1·5434520	8505653	1·1756888	1·3128066	2382732	1885	7617268	37
24	6481199	2215	3518801	1·5429244	8510667	1·1749960	1·3131316	2384617	1886	7615383	36
25	6483414	2214	3516586	1·5423973	8515684	1·1743038	1·3134568	2386503	1886	7613497	35
26	6485628	2214	3514372	1·5418706	8520704	1·1736120	1·3137823	2388389	1887	7611611	34
27	6487842	2214	3512158	1·5413445	8525726	1·1729207	1·3141081	2390276	1887	7609724	33
28	6490056	2212	3509944	1·5408189	8530750	1·1722298	1·3144341	2392163	1888	7607837	32
29	6492268	2212	3507732	1·5402937	8535777	1·1715395	1·3147604	2394051	1889	7605949	31
30	6494480	2212	3505520	1·5397690	8540807	1·1708496	1·3150870	2395940	1890	7604060	30
31	6496692	2211	3503308	1·5392449	8545839	1·1701601	1·3154139	2397830	1890	7602170	29
32	6498903	2211	3501097	1·5387212	8550873	1·1694712	1·3157410	2399720	1891	7600280	28
33	6501114	2210	3498886	1·5381980	8555910	1·1687827	1·3160684	2401611	1891	7598389	27
34	6503324	2209	3496676	1·5376752	8560950	1·1680947	1·3163960	2403502	1892	7596498	26
35	6505533	2209	3494467	1·5371530	8565992	1·1674071	1·3167240	2405394	1893	7594606	25
36	6507742	2209	3492258	1·5366313	8571037	1·1667200	1·3170523	2407287	1893	7592713	24
37	6509951	2207	3490049	1·5361100	8576084	1·1660334	1·3173808	2409180	1894	7590820	23
38	6512158	2208	3487842	1·5355892	8581133	1·1653472	1·3177096	2411074	1895	7588926	22
39	6514366	2206	3485634	1·5350689	8586185	1·1646615	1·3180386	2412969	1895	7587031	21
40	6516572	2206	3483428	1·5345491	8591240	1·1639763	1·3183680	2414864	1896	7585136	20
41	6518778	2206	3481222	1·5340297	8596297	1·1632916	1·3186976	2416760	1897	7583240	19
42	6520984	2205	3479016	1·5335109	8601357	1·1626073	1·3190274	2418657	1897	7581343	18
43	6523189	2205	3476811	1·5329925	8606419	1·1619234	1·3193576	2420554	1898	7579446	17
44	6525394	2204	3474606	1·5324746	8611484	1·1612400	1·3196881	2422452	1898	7577548	16
45	6527598	2203	3472402	1·5319572	8616551	1·1605571	1·3200188	2424350	1899	7575650	15
46	6529801	2203	3470199	1·5314403	8621621	1·1598747	1·3203498	2426249	1900	7573751	14
47	6532004	2202	3467996	1·5309238	8626694	1·1591927	1·3206810	2428149	1900	7571851	13
48	6534206	2202	3465794	1·5304078	8631768	1·1585112	1·3210126	2430049	1901	7569951	12
49	6536408	2201	3463592	1·5298923	8636846	1·1578301	1·3213444	2431950	1902	7568050	11
50	6538609	2201	3461391	1·5293773	8641926	1·1571495	1·3216765	2433852	1902	7566148	10
51	6540810	2200	3459190	1·5288627	8647009	1·1564693	1·3220089	2435754	1903	7564246	9
52	6543010	2199	3456990	1·5283487	8652094	1·1557896	1·3223416	2437657	1904	7562343	8
53	6545209	2199	3454791	1·5278351	8657181	1·1551104	1·3226745	2439561	1904	7560439	7
54	6547408	2199	3452592	1·5273219	8662272	1·1544316	1·3230078	2441465	1905	7558535	6
55	6549607	2197	3450393	1·5268093	8667365	1·1537532	1·3233413	2443370	1906	7556630	5
56	6551804	2198	3448196	1·5262971	8672460	1·1530754	1·3236750	2445276	1906	7554724	4
57	6554002	2196	3445998	1·5257854	8677558	1·1523979	1·3240091	2447182	1907	7552818	3
58	6556198	2197	3443802	1·5252741	8682659	1·1517210	1·3243435	2449089	1907	7550911	2
59	6558395	2195	3441605	1·5247634	8687762	1·1510445	1·3246781	2450996	1908	7549004	1
60	6560590		3439410	1·5242531	8692867	1·1503684	1·3250130	2452904		7547096	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif	Sine	′

Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	Dif.	Cosine	'
9·8080675	1505	10·1919325	9·3691334	9·9238135	2566	10·0761865	9·5529265	10·1157460	1061	9·8842540	60
9·8082180	1504	10·1917820	9·3694804	9·9240701	2565	10·0759299	9·5526555	10·1158521	1061	9·8841479	59
9·8083684	1504	10·1916316	9·3698272	9·9243266	2565	10·0756734	9·5523845	10·1159582	1061	9·8840418	58
9·8085188	1502	10·1914812	9·3701739	9·9245831	2565	10·0754169	9·5521133	10·1160643	1063	9·8839357	57
9·8086690	1502	10·1913310	9·3705205	9·9248396	2564	10·0751604	9·5518420	10·1161706	1062	9·8838294	56
9·8088192	1500	10·1911808	9·3708669	9·9250960	2564	10·0749040	9·5515706	10·1162768	1064	9·8837232	55
9·8089692	1500	10·1910308	9·3712131	9·9253524	2564	10·0746476	9·5512992	10·1163832	1064	9·8836168	54
9·8091192	1499	10·1908808	9·3715592	9·9256088	2564	10·0743912	9·5510276	10·1164896	1065	9·8835104	53
9·8092691	1498	10·1907309	9·3719051	9·9258652	2563	10·0741348	9·5507559	10·1165961	1065	9·8834039	52
9·8094189	1497	10·1905811	9·3722508	9·9261215	2563	10·0738785	9·5504841	10·1167026	1066	9·8832974	51
9·8095686	1496	10·1904314	9·3725965	9·9263778	2563	10·0736222	9·5502122	10·1168092	1067	9·8831908	50
9·8097182	1496	10·1902818	9·3729419	9·9266341	2563	10·0733659	9·5499402	10·1169159	1067	9·8830841	49
9·8098678	1494	10·1901322	9·3732872	9·9268904	2562	10·0731096	9·5496681	10·1170226	1068	9·8829774	48
9·8100172	1494	10·1899828	9·3736323	9·9271466	2562	10·0728534	9·5493959	10·1171294	1069	9·8828706	47
9·8101666	1493	10·1898334	9·3739773	9·9274028	2562	10·0725972	9·5491236	10·1172362	1070	9·8827638	46
9·8103159	1491	10·1896841	9·3743221	9·9276590	2562	10·0723410	9·5488511	10·1173432	1069	9·8826568	45
9·8104650	1491	10·1895350	9·3746668	9·9279152	2561	10·0720848	9·5485786	10·1174501	1071	9·8825499	44
9·8106141	1490	10·1893859	9·3750113	9·9281713	2561	10·0718287	9·5483060	10·1175572	1071	9·8824428	43
9·8107631	1490	10·1892369	9·3753557	9·9284274	2561	10·0715726	9·5480333	10·1176643	1072	9·8823357	42
9·8109121	1488	10·1890879	9·3756999	9·9286835	2561	10·0713165	9·5477604	10·1177715	1072	9·8822285	41
9·8110609	1487	10·1889391	9·3760440	9·9289396	2560	10·0710604	9·5474875	10·1178787	1073	9·8821213	40
9·8112096	1487	10·1887904	9·3763879	9·9291956	2560	10·0708044	9·5472145	10·1179860	1073	9·8820140	39
9·8113583	1486	10·1886417	9·3767316	9·9294516	2560	10·0705484	9·5469413	10·1180933	1075	9·8819067	38
9·8115069	1485	10·1884931	9·3770752	9·9297076	2560	10·0702924	9·5466681	10·1182008	1074	9·8817992	37
9·8116554	1484	10·1883446	9·3774186	9·9299636	2559	10·0700364	9·5463947	10·1183082	1076	9·8816918	36
9·8118038	1483	10·1881962	9·3777619	9·9302195	2560	10·0697805	9·5461212	10·1184158	1076	9·8815842	35
9·8119521	1482	10·1880479	9·3781050	9·9304755	2559	10·0695245	9·5458477	10·1185234	1077	9·8814766	34
9·8121003	1481	10·1878997	9·3784480	9·9307314	2558	10·0692686	9·5455740	10·1186311	1077	9·8813689	33
9·8122484	1481	10·1877516	9·3787908	9·9309872	2559	10·0690128	9·5453002	10·1187388	1078	9·8812612	32
9·8123965	1479	10·1876035	9·3791335	9·9312431	2558	10·0687569	9·5450264	10·1188466	1079	9·8811534	31
9·8125444	1479	10·1874556	9·3794760	9·9314989	2558	10·0685011	9·5447524	10·1189545	1079	9·8810455	30
9·8126923	1478	10·1873077	9·3798184	9·9317547	2558	10·0682453	9·5444783	10·1190624	1080	9·8809376	29
9·8128401	1477	10·1871599	9·3801606	9·9320105	2557	10·0679895	9·5442041	10·1191704	1081	9·8808296	28
9·8129878	1476	10·1870122	9·3805026	9·9322662	2558	10·0677338	9·5439298	10·1192785	1081	9·8807215	27
9·8131354	1475	10·1868646	9·3808445	9·9325220	2557	10·0674780	9·5436554	10·1193866	1082	9·8806134	26
9·8132829	1474	10·1867171	9·3811863	9·9327777	2557	10·0672223	9·5433809	10·1194948	1082	9·8805052	25
9·8134303	1474	10·1865697	9·3815279	9·9330334	2556	10·0669666	9·5431063	10·1196030	1083	9·8803970	24
9·8135777	1473	10·1864223	9·3818693	9·9332890	2556	10·0667110	9·5428316	10·1197113	1084	9·8802887	23
9·8137250	1471	10·1862750	9·3822106	9·9335446	2557	10·0664554	9·5425568	10·1198197	1084	9·8801803	22
9·8138721	1471	10·1861279	9·3825517	9·9338003	2556	10·0661997	9·5422818	10·1199281	1085	9·8800719	21
9·8140192	1470	10·1859808	9·3828927	9·9340559	2555	10·0659441	9·5420068	10·1200366	1086	9·8799634	20
9·8141662	1469	10·1858338	9·3832335	9·9343114	2556	10·0656886	9·5417317	10·1201452	1086	9·8798548	19
9·8143131	1469	10·1856869	9·3835742	9·9345670	2555	10·0654330	9·5414564	10·1202538	1087	9·8797462	18
9·8144600	1467	10·1855400	9·3839147	9·9348225	2555	10·0651775	9·5411811	10·1203625	1088	9·8796375	17
9·8146067	1467	10·1853933	9·3842551	9·9350780	2555	10·0649220	9·5409056	10·1204713	1088	9·8795287	16
9·8147534	1465	10·1852466	9·3845953	9·9353335	2554	10·0646665	9·5406301	10·1205801	1089	9·8794199	15
9·8148999	1465	10·1851001	9·3849354	9·9355889	2555	10·0644111	9·5403544	10·1206890	1089	9·8793110	14
9·8150464	1464	10·1849536	9·3852753	9·9358444	2554	10·0641556	9·5400786	10·1207979	1091	9·8792021	13
9·8151928	1463	10·1848072	9·3856151	9·9360998	2554	10·0639002	9·5398027	10·1209070	1090	9·8790930	12
9·8153391	1463	10·1846609	9·3859547	9·9363552	2553	10·0636448	9·5395268	10·1210160	1092	9·8789840	11
9·8154854	1461	10·1845146	9·3862942	9·9366105	2554	10·0633895	9·5392507	10·1211252	1092	9·8788748	10
9·8156315	1461	10·1843685	9·3866335	9·9368659	2553	10·0631341	9·5389745	10·1212344	1093	9·8787656	9
9·8157776	1459	10·1842224	9·3869727	9·9371212	2553	10·0628788	9·5386982	10·1213437	1093	9·8786563	8
9·8159235	1459	10·1840765	9·3873117	9·9373765	2553	10·0626235	9·5384218	10·1214530	1094	9·8785470	7
9·8160694	1458	10·1839306	9·3876506	9·9376318	2553	10·0623682	9·5381452	10·1215624	1095	9·8784376	6
9·8162152	1457	10·1837848	9·3879893	9·9378871	2552	10·0621129	9·5378686	10·1216719	1095	9·8783281	5
9·8163609	1457	10·1836391	9·3883279	9·9381423	2552	10·0618577	9·5375919	10·1217814	1096	9·8782186	4
9·8165066	1455	10·1834934	9·3886662	9·9383975	2552	10·0616025	9·5373151	10·1218910	1096	9·8781090	3
9·8166521	1454	10·1833479	9·3890045	9·9386527	2552	10·0613473	9·5370381	10·1220006	1098	9·8779994	2
9·8167975	1454	10·1832025	9·3893426	9·9389079	2552	10·0610921	9·5367611	10·1221104	1097	9·8778896	1
9·8169429		10·1830571	9·3896806	9·9391631		10·0608369	9·5364839	10·1222201		9·8777799	0
Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	'

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	6560590	2195	3439410	1·5242531	8692867	1·1503684	1·3250130	2452904	1909	7547096	60
1	6562785	2195	3437215	1·5237443	8697976	1·1496928	1·3253482	2454813	1909	7545187	59
2	6564980	2194	3435020	1·5232339	8703087	1·1490176	1·3256837	2456722	1910	7543278	58
3	6567174	2193	3432826	1·5227250	8708200	1·1483429	1·3260194	2458632	1911	7541368	57
4	6569367	2193	3430633	1·5222166	8713316	1·1476687	1·3263554	2460543	1911	7539457	56
5	6571560	2192	3428440	1·5217087	8718435	1·1469949	1·3266918	2462454	1912	7537546	55
6	6573752	2192	3426248	1·5212012	8723556	1·1463215	1·3270284	2464366	1913	7535634	54
7	6575944	2191	3424056	1·5206942	8728680	1·1456486	1·3273653	2466279	1913	7533721	53
8	6578135	2191	3421865	1·5201876	8733806	1·1449762	1·3277024	2468192	1914	7531808	52
9	6580326	2190	3419674	1·5196815	8738935	1·1443041	1·3280399	2470106	1914	7529894	51
10	6582516	2190	3417484	1·5191759	8744067	1·1436326	1·3283776	2472020	1915	7527980	50
11	6584706	2189	3415294	1·5186708	8749201	1·1429615	1·3287156	2473935	1916	7526065	49
12	6586895	2188	3413105	1·5181661	8754338	1·1422908	1·3290539	2475851	1916	7524149	48
13	6589083	2188	3410917	1·5176619	8759478	1·1416206	1·3293925	2477767	1917	7522233	47
14	6591271	2187	3408729	1·5171581	8764620	1·1409508	1·3297314	2479684	1918	7520316	46
15	6593458	2187	3406542	1·5166548	8769765	1·1402815	1·3300706	2481602	1918	7518398	45
16	6595645	2186	3404355	1·5161520	8774912	1·1396126	1·3304100	2483520	1919	7516480	44
17	6597831	2186	3402169	1·5156496	8780062	1·1389441	1·3307497	2485439	1920	7514561	43
18	6600017	2185	3399983	1·5151477	8785215	1·1382761	1·3310897	2487359	1920	7512641	42
19	6602202	2184	3397798	1·5146462	8790370	1·1376086	1·3314301	2489279	1921	7510721	41
20	6604386	2184	3395614	1·5141452	8795528	1·1369414	1·3317707	2491200	1921	7508800	40
21	6606570	2184	3393430	1·5136447	8800688	1·1362747	1·3321115	2493121	1922	7506879	39
22	6608754	2182	3391246	1·5131446	8805852	1·1356085	1·3324527	2495043	1923	7504957	38
23	6610936	2183	3389064	1·5126450	8811017	1·1349427	1·3327942	2496966	1923	7503034	37
24	6613119	2181	3386881	1·5121459	8816186	1·1342773	1·3331359	2498889	1924	7501111	36
25	6615300	2182	3384700	1·5116472	8821357	1·1336124	1·3334779	2500813	1925	7499187	35
26	6617482	2180	3382518	1·5111489	8826531	1·1329479	1·3338203	2502738	1925	7497262	34
27	6619662	2180	3380338	1·5106511	8831707	1·1322839	1·3341629	2504663	1926	7495337	33
28	6621842	2180	3378158	1·5101538	8836886	1·1316203	1·3345058	2506589	1927	7493411	32
29	6624022	2178	3375978	1·5096569	8842068	1·1309571	1·3348489	2508516	1927	7491484	31
30	6626200	2179	3373800	1·5091605	8847253	1·1302944	1·3351924	2510443	1928	7489557	30
31	6628379	2178	3371621	1·5086645	8852440	1·1296321	1·3355362	2512371	1928	7487629	29
32	6630557	2177	3369443	1·5081690	8857630	1·1289702	1·3358802	2514299	1929	7485701	28
33	6632734	2176	3367266	1·5076739	8862822	1·1283088	1·3362246	2516228	1930	7483772	27
34	6634910	2177	3365090	1·5071793	8868017	1·1276478	1·3365692	2518158	1930	7481842	26
35	6637087	2175	3362913	1·5066852	8873215	1·1269872	1·3369141	2520088	1931	7479912	25
36	6639262	2175	3360738	1·5061915	8878415	1·1263271	1·3372594	2522019	1932	7477981	24
37	6641437	2175	3358563	1·5056982	8883619	1·1256674	1·3376049	2523951	1932	7476049	23
38	6643612	2173	3356388	1·5052054	8888825	1·1250081	1·3379507	2525883	1933	7474117	22
39	6645785	2174	3354215	1·5047131	8894033	1·1243493	1·3382968	2527816	1933	7472184	21
40	6647959	2172	3352041	1·5042211	8899244	1·1236909	1·3386432	2529749	1934	7470251	20
41	6650131	2173	3349869	1·5037297	8904458	1·1230329	1·3389898	2531683	1935	7468317	19
42	6652304	2171	3347696	1·5032387	8909675	1·1223754	1·3393368	2533618	1936	7466382	18
43	6654475	2171	3345525	1·5027481	8914894	1·1217183	1·3396841	2535554	1936	7464446	17
44	6656646	2171	3343354	1·5022580	8920116	1·1210616	1·3400316	2537490	1936	7462510	16
45	6658817	2170	3341183	1·5017683	8925341	1·1204053	1·3403795	2539426	1938	7460574	15
46	6660987	2169	3339013	1·5012791	8930569	1·1197495	1·3407276	2541364	1937	7458636	14
47	6663156	2169	3336844	1·5007903	8935799	1·1190941	1·3410761	2543301	1939	7456699	13
48	6665325	2168	3334675	1·5003020	8941032	1·1184391	1·3414248	2545240	1939	7454760	12
49	6667493	2168	3332507	1·4998141	8946268	1·1177846	1·3417738	2547179	1940	7452821	11
50	6669661	2167	3330339	1·4993267	8951506	1·1171305	1·3421232	2549119	1940	7450881	10
51	6671828	2166	3328172	1·4988397	8956747	1·1164768	1·3424728	2551059	1942	7448941	9
52	6673994	2166	3326006	1·4983531	8961991	1·1158235	1·3428227	2553001	1941	7446999	8
53	6676160	2166	3323840	1·4978670	8967238	1·1151706	1·3431729	2554942	1942	7445058	7
54	6678326	2164	3321674	1·4973813	8972487	1·1145182	1·3435234	2556885	1943	7443115	6
55	6680490	2165	3319510	1·4968961	8977739	1·1138662	1·3438742	2558827	1944	7441173	5
56	6682655	2163	3317345	1·4964113	8982994	1·1132146	1·3442253	2560771	1944	7439229	4
57	6684818	2163	3315182	1·4959270	8988251	1·1125635	1·3445767	2562715	1945	7437285	3
58	6686981	2163	3313019	1·4954431	8993512	1·1119127	1·3449284	2564660	1946	7435340	2
59	6689144	2162	3310856	1·4949596	8998775	1·1112624	1·3452804	2566606	1946	7433394	1
60	6691306		3308694	1·4944765	9004040	1·1106125	1·3456327	2568552		7431448	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	Dif.	Cosine	′
0	9·8169429	1453	10·1830571	9·3896806	9·9391631	2551	10·0608369	9·5364839	10·1222201	1099	9·8777799	60
1	9·8170882	1452	10·1829118	9·3900184	9·9394182	2551	10·0605818	9·5362067	10·1223300	1099	9·8776700	59
2	9·8172334	1451	10·1827666	9·3903561	9·9396733	2551	10·0603267	9·5359293	10·1224399	1100	9·8775601	58
3	9·8173785	1450	10·1826215	9·3906936	9·9399284	2551	10·0600716	9·5356518	10·1225499	1100	9·8774501	57
4	9·8175235	1450	10·1824765	9·3910309	9·9401835	2550	10·0598165	9·5353742	10·1226599	1101	9·8773401	56
5	9·8176685	1448	10·1823315	9·3913682	9·9404385	2551	10·0595615	9·5350965	10·1227700	1102	9·8772300	55
6	9·8178133	1448	10·1821867	9·3917052	9·9406936	2550	10·0593064	9·5348187	10·1228802	1102	9·8771198	54
7	9·8179581	1447	10·1820419	9·3920421	9·9409486	2550	10·0590514	9·5345408	10·1229904	1103	9·8770096	53
8	9·8181028	1446	10·1818972	9·3923789	9·9412036	2549	10·0587964	9·5342628	10·1231007	1104	9·8768993	52
9	9·8182474	1445	10·1817526	9·3927155	9·9414585	2550	10·0585415	9·5339847	10·1232111	1104	9·8767889	51
10	9·8183919	1445	10·1816081	9·3930520	9·9417135	2549	10·0582865	9·5337065	10·1233215	1105	9·8766785	50
11	9·8185364	1443	10·1814636	9·3933883	9·9419684	2549	10·0580316	9·5334281	10·1234320	1106	9·8765680	49
12	9·8186807	1443	10·1813193	9·3937245	9·9422233	2549	10·0577767	9·5331497	10·1235426	1106	9·8764574	48
13	9·8188250	1442	10·1811750	9·3940605	9·9424782	2549	10·0575218	9·5328712	10·1236532	1107	9·8763468	47
14	9·8189692	1441	10·1810308	9·3943964	9·9427331	2548	10·0572669	9·5325925	10·1237639	1108	9·8762361	46
15	9·8191133	1440	10·1808867	9·3947321	9·9429879	2549	10·0570121	9·5323137	10·1238747	1108	9·8761253	45
16	9·8192573	1439	10·1807427	9·3950677	9·9432428	2548	10·0567572	9·5320349	10·1239855	1109	9·8760145	44
17	9·8194012	1438	10·1805988	9·3954031	9·9434976	2548	10·0565024	9·5317559	10·1240964	1109	9·8759036	43
18	9·8195450	1438	10·1804550	9·3957384	9·9437524	2548	10·0562476	9·5314768	10·1242073	1111	9·8757927	42
19	9·8196888	1437	10·1803112	9·3960735	9·9440072	2547	10·0559928	9·5311976	10·1243184	1110	9·8756816	41
20	9·8198325	1436	10·1801675	9·3964085	9·9442619	2547	10·0557381	9·5309183	10·1244294	1112	9·8755706	40
21	9·8199761	1435	10·1800239	9·3967434	9·9445166	2548	10·0554834	9·5306389	10·1245406	1112	9·8754594	39
22	9·8201196	1434	10·1798804	9·3970781	9·9447714	2547	10·0552286	9·5303594	10·1246518	1113	9·8753482	38
23	9·8202630	1433	10·1797370	9·3974126	9·9450261	2546	10·0549739	9·5300797	10·1247631	1113	9·8752369	37
24	9·8204063	1433	10·1795937	9·3977470	9·9452807	2547	10·0547193	9·5298000	10·1248744	1114	9·8751256	36
25	9·8205496	1431	10·1794504	9·3980813	9·9455354	2546	10·0544646	9·5295201	10·1249858	1115	9·8750142	35
26	9·8206927	1431	10·1793073	9·3984154	9·9457900	2547	10·0542100	9·5292402	10·1250973	1115	9·8749027	34
27	9·8208358	1430	10·1791642	9·3987493	9·9460447	2546	10·0539553	9·5289601	10·1252088	1117	9·8747912	33
28	9·8209788	1429	10·1790212	9·3990831	9·9462993	2546	10·0537007	9·5286799	10·1253205	1116	9·8746795	32
29	9·8211217	1429	10·1788783	9·3994168	9·9465539	2545	10·0534461	9·5283997	10·1254321	1118	9·8745679	31
30	9·8212646	1427	10·1787354	9·3997503	9·9468084	2546	10·0531916	9·5281194	10·1255439	1118	9·8744561	30
31	9·8214073	1427	10·1785927	9·4000837	9·9470630	2545	10·0529370	9·5278388	10·1256557	1118	9·8743443	29
32	9·8215500	1426	10·1784500	9·4004169	9·9473175	2545	10·0526825	9·5275582	10·1257675	1120	9·8742325	28
33	9·8216926	1425	10·1783074	9·4007500	9·9475720	2545	10·0524280	9·5272774	10·1258795	1120	9·8741205	27
34	9·8218351	1424	10·1781649	9·4010829	9·9478265	2545	10·0521735	9·5269966	10·1259915	1120	9·8740085	26
35	9·8219775	1423	10·1780225	9·4014157	9·9480810	2545	10·0519190	9·5267157	10·1261035	1121	9·8738965	25
36	9·8221198	1423	10·1778802	9·4017484	9·9483355	2544	10·0516645	9·5264346	10·1262156	1122	9·8737844	24
37	9·8222621	1421	10·1777379	9·4020809	9·9485899	2544	10·0514101	9·5261535	10·1263278	1123	9·8736722	23
38	9·8224042	1421	10·1775958	9·4024132	9·9488443	2544	10·0511557	9·5258722	10·1264401	1123	9·8735599	22
39	9·8225463	1420	10·1774537	9·4027454	9·9490987	2544	10·0509013	9·5255908	10·1265524	1124	9·8734476	21
40	9·8226883	1419	10·1773117	9·4030775	9·9493531	2544	10·0506469	9·5253094	10·1266648	1125	9·8733352	20
41	9·8228302	1419	10·1771698	9·4034094	9·9496075	2544	10·0503925	9·5250276	10·1267773	1125	9·8732227	19
42	9·8229721	1417	10·1770279	9·4037412	9·9498619	2543	10·0501381	9·5247461	10·1268898	1126	9·8731102	18
43	9·8231138	1417	10·1768862	9·4040728	9·9301162	2543	10·0498838	9·5244643	10·1270024	1127	9·8729976	17
44	9·8232555	1416	10·1767445	9·4044043	9·9503705	2543	10·0496295	9·5241823	10·1271151	1127	9·8728849	16
45	9·8233971	1415	10·1766029	9·4047356	9·9506248	2543	10·0493752	9·5239003	10·1272278	1128	9·8727722	15
46	9·8235386	1414	10·1764614	9·4050668	9·9508791	2543	10·0491209	9·5236182	10·1273406	1128	9·8726594	14
47	9·8236800	1413	10·1763200	9·4053978	9·9511334	2542	10·0488666	9·5233359	10·1274534	1129	9·8725466	13
48	9·8238213	1413	10·1761787	9·4057287	9·9513876	2543	10·0486124	9·5230536	10·1275663	1130	9·8724337	12
49	9·8239626	1411	10·1760374	9·4060595	9·9516419	2542	10·0483581	9·5227711	10·1276793	1131	9·8723207	11
50	9·8241037	1411	10·1758963	9·4063901	9·9518961	2542	10·0481039	9·5224885	10·1277924	1131	9·8722076	10
51	9·8242448	1410	10·1757552	9·4067206	9·9521503	2542	10·0478497	9·5222058	10·1279055	1132	9·8720945	9
52	9·8243858	1409	10·1756142	9·4070509	9·9524045	2542	10·0475955	9·5219230	10·1280187	1132	9·8719813	8
53	9·8245267	1409	10·1754733	9·4073811	9·9526587	2541	10·0473413	9·5216401	10·1281319	1133	9·8718681	7
54	9·8246676	1407	10·1753324	9·4077111	9·9529128	2542	10·0470872	9·5213571	10·1282452	1134	9·8717548	6
55	9·8248083	1407	10·1751917	9·4080410	9·9531670	2541	10·0468330	9·5210739	10·1283586	1135	9·8716414	5
56	9·8249490	1406	10·1750510	9·4083708	9·9534211	2541	10·0465789	9·5207907	10·1284721	1135	9·8715279	4
57	9·8250896	1405	10·1749104	9·4087004	9·9536752	2541	10·0463248	9·5205073	10·1285856	1136	9·8714144	3
58	9·8252301	1404	10·1747699	9·4090298	9·9539293	2541	10·0460707	9·5202239	10·1286992	1136	9·8713008	2
59	9·8253705	1404	10·1746295	9·4093591	9·9541834	2540	10·0458166	9·5199403	10·1288128	1137	9·8711872	1
60	9·8255109		10·1744891	9·4096883	9·9544374		10·0455626	9·5196566	10·1289265		9·8710735	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	′

′	Sine	Dif	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	
0	6691306	2162	3308694	1·4944765	9004040	1·1106125	1·3456327	2568552	1946	7431448	60
1	6693468	2160	3306532	1·4939940	9009309	1·1099630	1·3459853	2570498	1948	7429502	59
2	6695628	2161	3304372	1·4935118	9014580	1·1093140	1·3463382	2572446	1948	7427554	58
3	6697789	2159	3302211	1·4930301	9019854	1·1086653	1·3466914	2574394	1948	7425606	57
4	6699948	2160	3300052	1·4925488	9025131	1·1080171	1·3470449	2576342	1950	7423658	56
5	6702108	2158	3297892	1·4920680	9030411	1·1073693	1·3473987	2578292	1950	7421708	55
6	6704266	2158	3295734	1·4915876	9035693	1·1067219	1·3477528	2580242	1950	7419758	54
7	6706424	2158	3293576	1·4911076	9040979	1·1060750	1·3481072	2582192	1951	7417808	53
8	6708582	2157	3291418	1·4906280	9046267	1·1054284	1·3484619	2584143	1952	7415857	52
9	6710739	2156	3289261	1·4901489	9051557	1·1047823	1·3488168	2586095	1952	7413905	51
10	6712895	2156	3287105	1·4896703	9056851	1·1041365	1·3491721	2588047	1953	7411953	50
11	6715051	2155	3284949	1·4891920	9062147	1·1034912	1·3495277	2590000	1954	7410000	49
12	6717206	2155	3282794	1·4887142	9067446	1·1028463	1·3498836	2591954	1954	7408046	48
13	6719361	2154	3280639	1·4882369	9072748	1·1022019	1·3502398	2593908	1955	7406092	47
14	6721515	2153	3278485	1·4877599	9078053	1·1015578	1·3505963	2595863	1956	7404137	46
15	6723668	2153	3276332	1·4872834	9083360	1·1009141	1·3509531	2597819	1956	7402181	45
16	6725821	2152	3274179	1·4868073	9088671	1·1002709	1·3513102	2599775	1957	7400225	44
17	6727973	2152	3272027	1·4863317	9093984	1·0996281	1·3516677	2601732	1957	7398268	43
18	6730125	2151	3269875	1·4858565	9099300	1·0989857	1·3520254	2603689	1958	7396311	42
19	6732276	2151	3267724	1·4853817	9104619	1·0983436	1·3523834	2605647	1959	7394353	41
20	6734427	2150	3265573	1·4849073	9109940	1·0977020	1·3527417	2607606	1959	7392394	40
21	6736577	2150	3263423	1·4844334	9115265	1·0970609	1·3531003	2609565	1960	7390435	39
22	6738727	2149	3261273	1·4839599	9120592	1·0964201	1·3534593	2611525	1960	7388475	38
23	6740876	2148	3259124	1·4834868	9125922	1·0957797	1·3538185	2613485	1962	7386515	37
24	6743024	2148	3256976	1·4830142	9131255	1·0951397	1·3541780	2615447	1961	7384553	36
25	6745172	2147	3254828	1·4825420	9136591	1·0945002	1·3545379	2617408	1963	7382592	35
26	6747319	2147	3252681	1·4820702	9141929	1·0938610	1·3548980	2619371	1963	7380629	34
27	6749466	2146	3250534	1·4815988	9147270	1·0932223	1·3552585	2621334	1963	7378666	33
28	6751612	2145	3248388	1·4811278	9152615	1·0925840	1·3556193	2623297	1965	7376703	32
29	6753757	2145	3246243	1·4806573	9157962	1·0919460	1·3559803	2625262	1965	7374738	31
30	6755902	2144	3244098	1·4801872	9163312	1·0913085	1·3563417	2627227	1965	7372773	30
31	6758046	2144	3241954	1·4797176	9168665	1·0906714	1·3567034	2629192	1966	7370808	29
32	6760190	2143	3239810	1·4792483	9174020	1·0900347	1·3570654	2631158	1967	7368842	28
33	6762333	2143	3237667	1·4787795	9179379	1·0893984	1·3574277	2633125	1967	7366875	27
34	6764476	2142	3235524	1·4783111	9184740	1·0887624	1·3577904	2635092	1968	7364908	26
35	6766618	2142	3233382	1·4778431	9190104	1·0881269	1·3581533	2637060	1969	7362940	25
36	6768760	2141	3231240	1·4773755	9195471	1·0874918	1·3585164	2639029	1969	7360971	24
37	6770901	2140	3229099	1·4769084	9200841	1·0868571	1·3588800	2640998	1970	7359002	23
38	6773041	2140	3226959	1·4764417	9206214	1·0862228	1·3592438	2642968	1971	7357032	22
39	6775181	2139	3224819	1·4759754	9211590	1·0855889	1·3596080	2644939	1971	7355061	21
40	6777320	2139	3222680	1·4755095	9216969	1·0849554	1·3599725	2646910	1972	7353090	20
41	6779459	2138	3220541	1·4750440	9222350	1·0843223	1·3603372	2648882	1972	7351118	19
42	6781597	2137	3218403	1·4745790	9227734	1·0836896	1·3607023	2650854	1973	7349146	18
43	6783734	2137	3216266	1·4741144	9233122	1·0830573	1·3610677	2652827	1974	7347173	17
44	6785871	2136	3214129	1·4736502	9238512	1·0824254	1·3614334	2654801	1974	7345199	16
45	6788007	2136	3211993	1·4731864	9243905	1·0817939	1·3617995	2656775	1975	7343225	15
46	6790143	2135	3209857	1·4727230	9249301	1·0811628	1·3621658	2658750	1975	7341250	14
47	6792278	2135	3207722	1·4722600	9254700	1·0805321	1·3625324	2660725	1976	7339275	13
48	6794413	2134	3205587	1·4717975	9260102	1·0799018	1·3628994	2662701	1977	7337299	12
49	6796547	2134	3203453	1·4713354	9265506	1·0792718	1·3632667	2664678	1977	7335322	11
50	6798681	2132	3201319	1·4708736	9270914	1·0786423	1·3636343	2666655	1978	7333345	10
51	6800813	2133	3199187	1·4704123	9276324	1·0780132	1·3640022	2668633	1979	7331367	9
52	6802946	2132	3197054	1·4699514	9281738	1·0773845	1·3643704	2670612	1979	7329388	8
53	6805078	2131	3194922	1·4694910	9287154	1·0767561	1·3647389	2672591	1980	7327409	7
54	6807209	2130	3192791	1·4690309	9292573	1·0761282	1·3651078	2674571	1980	7325429	6
55	6809339	2130	3190661	1·4685713	9297996	1·0755006	1·3654770	2676551	1982	7323449	5
56	6811469	2130	3188531	1·4681120	9303421	1·0748734	1·3658464	2678533	1981	7321467	4
57	6813599	2129	3186401	1·4676532	9308849	1·0742467	1·3662162	2680514	1983	7319486	3
58	6815728	2128	3184272	1·4671948	9314280	1·0736203	1·3665863	2682497	1982	7317503	2
59	6817856	2128	3182144	1·4667368	9319714	1·0729943	1·3669567	2684479	1984	7315521	1
60	6819984		3180016	1·4662792	9325151	1·0723687	1·3673275	2686463		7313537	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	Dif.	Cosine	
0	9·8255109	1403	10·1744891	9·4096883	9·9544374	2541	10·0455626	9·5196568	10·1289265	1138	9·8710735	6
1	9·8256512	1401	10·1743488	9·4100174	9·9546915	2540	10·0453085	9·5193728	10·1290403	1139	9·8709597	5
2	9·8257913	1401	10·1742087	9·4103462	9·9549455	2540	10·0450545	9·5190889	10·1291542	1139	9·8708458	5
3	9·8259314	1401	10·1740686	9·4106750	9·9551995	2540	10·0448005	9·5188049	10·1292681	1140	9·8707319	5
4	9·8260715	1399	10·1739285	9·4110036	9·9554535	2540	10·0445465	9·5185207	10·1293821	1140	9·8706179	5
5	9·8262114	1398	10·1737886	9·4113321	9·9557075	2540	10·0442925	9·5182365	10·1294961	1141	9·8705039	5
6	9·8263512	1398	10·1736488	9·4116604	9·9559615	2539	10·0440385	9·5179521	10·1296102	1142	9·8703898	5
7	9·8264910	1397	10·1735090	9·4119885	9·9562154	2540	10·0437846	9·5176677	10·1297244	1143	9·8702756	5
8	9·8266307	1396	10·1733693	9·4123166	9·9564694	2539	10·0435306	9·5173831	10·1298387	1143	9·8701613	5
9	9·8267703	1395	10·1732297	9·4126445	9·9567233	2539	10·0432767	9·5170984	10·1299530	1144	9·8700470	5
10	9·8269098	1395	10·1730902	9·4129722	9·9569772	2539	10·0430228	9·5168136	10·1300674	1144	9·8699326	5
11	9·8270493	1394	10·1729507	9·4132998	9·9572311	2539	10·0427689	9·5165287	10·1301818	1145	9·8698182	4
12	9·8271887	1392	10·1728113	9·4136273	9·9574850	2539	10·0425150	9·5162436	10·1302963	1146	9·8697037	4
13	9·8273279	1392	10·1726721	9·4139546	9·9577389	2538	10·0422611	9·5159585	10·1304109	1147	9·8695891	4
14	9·8274671	1392	10·1725329	9·4142818	9·9579927	2538	10·0420073	9·5156733	10·1305256	1147	9·8694744	4
15	9·8276063	1390	10·1723937	9·4146088	9·9582465	2539	10·0417535	9·5153879	10·1306403	1148	9·8693597	4
16	9·8277453	1390	10·1722547	9·4149357	9·9585004	2538	10·0414996	9·5151024	10·1307551	1148	9·8692449	4
17	9·8278843	1388	10·1721157	9·4152625	9·9587542	2538	10·0412458	9·5148168	10·1308699	1149	9·8691301	4
18	9·8280231	1388	10·1719769	9·4155891	9·9590080	2538	10·0409920	9·5145311	10·1309848	1150	9·8690152	4
19	9·8281619	1387	10·1718381	9·4159156	9·9592618	2537	10·0407382	9·5142453	10·1310998	1151	9·8689002	4
20	9·8283006	1387	10·1716994	9·4162419	9·9595155	2538	10·0404845	9·5139594	10·1312149	1151	9·8687851	4
21	9·8284393	1385	10·1715607	9·4165681	9·9597693	2537	10·0402307	9·5136734	10·1313300	1152	9·8686700	3
22	9·8285778	1385	10·1714222	9·4168942	9·9600230	2537	10·0399770	9·5133872	10·1314452	1152	9·8685548	3
23	9·8287163	1384	10·1712837	9·4172201	9·9602767	2538	10·0397233	9·5131009	10·1315604	1154	9·8684396	3
24	9·8288547	1383	10·1711453	9·4175459	9·9605305	2537	10·0394695	9·5128146	10·1316758	1154	9·8683242	3
25	9·8289930	1382	10·1710070	9·4178715	9·9607842	2536	10·0392158	9·5125281	10·1317912	1154	9·8682088	3
26	9·8291312	1382	10·1708688	9·4181970	9·9610378	2537	10·0389622	9·5122415	10·1319066	1155	9·8680934	3
27	9·8292694	1381	10·1707306	9·4185223	9·9612915	2537	10·0387085	9·5119548	10·1320221	1156	9·8679779	3
28	9·8294075	1379	10·1705925	9·4188475	9·9615452	2536	10·0384548	9·5116679	10·1321377	1157	9·8678623	3
29	9·8295454	1379	10·1704546	9·4191726	9·9617988	2537	10·0382012	9·5113810	10·1322534	1157	9·8677466	3
30	9·8296833	1379	10·1703167	9·4194975	9·9620525	2536	10·0379475	9·5110940	10·1323691	1158	9·8676309	3
31	9·8298212	1377	10·1701788	9·4198223	9·9623061	2536	10·0376939	9·5108068	10·1324849	1159	9·8675151	2
32	9·8299589	1377	10·1700411	9·4201470	9·9625597	2536	10·0374403	9·5105195	10·1326008	1159	9·8673992	2
33	9·8300966	1376	10·1699034	9·4204715	9·9628133	2536	10·0371867	9·5102321	10·1327167	1160	9·8672833	2
34	9·8302342	1375	10·1697658	9·4207959	9·9630669	2535	10·0369331	9·5099446	10·1328327	1161	9·8671673	2
35	9·8303717	1374	10·1696283	9·4211201	9·9633204	2536	10·0366796	9·5096570	10·1329488	1161	9·8670512	2
36	9·8305091	1373	10·1694909	9·4214442	9·9635740	2535	10·0364260	9·5093693	10·1330649	1162	9·8669351	2
37	9·8306464	1373	10·1693536	9·4217681	9·9638275	2536	10·0361725	9·5090814	10·1331811	1163	9·8668189	2
38	9·8307837	1372	10·1692163	9·4220920	9·9640811	2535	10·0359189	9·5087934	10·1332974	1163	9·8667026	2
39	9·8309209	1371	10·1690791	9·4224156	9·9643346	2535	10·0356654	9·5085054	10·1334137	1164	9·8665863	2
40	9·8310580	1370	10·1689420	9·4227392	9·9645881	2535	10·0354119	9·5082172	10·1335301	1165	9·8664699	2
41	9·8311950	1370	10·1688050	9·4230626	9·9648416	2535	10·0351584	9·5079289	10·1336466	1165	9·8663534	1
42	9·8313320	1368	10·1686680	9·4233858	9·9650951	2535	10·0349049	9·5076405	10·1337631	1166	9·8662369	1
43	9·8314688	1368	10·1685412	9·4237089	9·9653486	2534	10·0346514	9·5073519	10·1338797	1167	9·8661203	1
44	9·8316056	1367	10·1683944	9·4240319	9·9656020	2535	10·0343980	9·5070633	10·1339964	1168	9·8660036	1
45	9·8317423	1366	10·1682577	9·4243548	9·9658555	2534	10·0341445	9·5067745	10·1341132	1168	9·8658868	1
46	9·8318789	1366	10·1681211	9·4246775	9·9661089	2534	10·0338911	9·5064857	10·1342300	1169	9·8657700	1
47	9·8320155	1364	10·1679845	9·4250000	9·9663623	2534	10·0336377	9·5061967	10·1343469	1169	9·8656531	1
48	9·8321519	1364	10·1678481	9·4253225	9·9666157	2535	10·0333843	9·5059076	10·1344638	1170	9·8655362	1
49	9·8322883	1363	10·1677117	9·4256447	9·9668692	2533	10·0331308	9·5056183	10·1345808	1171	9·8654192	1
50	9·8324246	1363	10·1675754	9·4259669	9·9671225	2534	10·0328775	9·5053290	10·1346979	1172	9·8653021	1
51	9·8325609	1361	10·1674391	9·4262889	9·9673759	2534	10·0326241	9·5050396	10·1348151	1172	9·8651849	
52	9·8326970	1361	10·1673030	9·4266108	9·9676293	2534	10·0323707	9·5047500	10·1349323	1173	9·8650677	
53	9·8328331	1360	10·1671669	9·4269325	9·9678827	2533	10·0321173	9·5044603	10·1350496	1173	9·8649504	
54	9·8329691	1359	10·1670309	9·4272541	9·9681360	2533	10·0318640	9·5041705	10·1351669	1175	9·8648331	
55	9·8331050	1358	10·1668950	9·4275756	9·9683893	2534	10·0316107	9·5038806	10·1352844	1175	9·8647156	
56	9·8332408	1358	10·1667592	9·4278969	9·9686427	2533	10·0313573	9·5035906	10·1354019	1175	9·8645981	
57	9·8333766	1356	10·1666234	9·4282181	9·9688960	2533	10·0311040	9·5033005	10·1355194	1177	9·8644806	
58	9·8335122	1356	10·1664878	9·4285392	9·9691493	2533	10·0308507	9·5030102	10·1356371	1177	9·8643629	
59	9·8336478	1355	10·1663522	9·4288601	9·9694026	2533	10·0305974	9·5027198	10·1357548	1177	9·8642452	
60	9·8337833		10·1662167	9·4291809	9·9696559		10·0303441	9·5024294	10·1358725		9·8641275	
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang.	Secant	Vers.	Dif.	Cosine	′
0	6819984	2127	3180016	1·4662792	9325151	1·0723687	1·3673275	2686463	1984	7313537	60
1	6822111	2126	3177889	1·4658226	9330591	1·0717435	1·3676945	2688447	1985	7311553	59
2	6824237	2126	3175763	1·4653662	9336036	1·0711187	1·3680599	2690432	1985	7309568	58
3	6826363	2126	3173637	1·4649099	9341479	1·0704943	1·3684419	2692417	1986	7307583	57
4	6828489	2124	3171511	1·4644539	9346928	1·0698702	1·3688139	2694403	1987	7305597	56
5	6830613	2124	3169387	1·4639981	9352380	1·0692466	1·3691859	2696390	1987	7303610	55
6	6832738	2123	3167262	1·4635425	9357834	1·0686233	1·3695580	2698377	1988	7301623	54
7	6834861	2123	3165139	1·4630875	9363292	1·0680004	1·3699115	2700365	1989	7299635	53
8	6836984	2121	3163016	1·4626331	9368751	1·0673779	1·3703644	2702154	1989	7297646	52
9	6839107	2122	3160893	1·4621792	9374216	1·0667558	1·3706784	2704143	1989	7295657	51
10	6841229	2121	3158771	1·4617257	9379683	1·0661341	1·3710525	2706332	1991	7293668	50
11	6843350	2121	3156650	1·4612727	9385153	1·0655128	1·3714266	2708323	1991	7291677	49
12	6845471	2120	3154529	1·4608198	9390625	1·0648918	1·3718011	2710314	1991	7289686	48
13	6847591	2120	3152409	1·4603675	9396101	1·0642713	1·3721764	2712305	1992	7287695	47
14	6849711	2119	3150289	1·4599156	9401579	1·0636511	1·3725512	2714297	1993	7285703	46
15	6851830	2118	3148170	1·4594641	9407061	1·0630313	1·3729266	2716290	1994	7283710	45
16	6853948	2118	3146052	1·4590130	9412545	1·0624119	1·3733026	2718284	1994	7281716	44
17	6856066	2118	3143934	1·4585623	9418033	1·0617929	1·3736788	2720278	1994	7279722	43
18	6858184	2116	3141816	1·4581120	9423523	1·0611742	1·3740555	2722272	1996	7277728	42
19	6860300	2116	3139700	1·4576621	9429017	1·0605560	1·3744321	2724268	1996	7275732	41
20	6862416	2116	3137584	1·4572127	9434515	1·0599381	1·3748092	2726264	1996	7273736	40
21	6864532	2115	3135468	1·4567636	9440013	1·0593206	1·3751867	2728260	1997	7271740	39
22	6866647	2114	3133353	1·4563149	9445516	1·0587035	1·3755645	2730257	1998	7269743	38
23	6868761	2114	3131239	1·4558666	9451021	1·0580867	1·3759426	2732255	1998	7267745	37
24	6870875	2113	3129125	1·4554187	9456530	1·0574704	1·3763210	2734253	1999	7265747	36
25	6872988	2113	3127012	1·4549712	9462042	1·0568544	1·3766998	2736252	2000	7263748	35
26	6875101	2112	3124899	1·4545241	9467556	1·0562388	1·3770789	2738252	2000	7261748	34
27	6877213	2112	3122787	1·4540774	9473074	1·0556235	1·3774583	2740252	2001	7259748	33
28	6879325	2110	3120675	1·4536311	9478595	1·0550087	1·3778380	2742253	2001	7257747	32
29	6881435	2111	3118565	1·4531852	9484119	1·0543942	1·3782181	2744254	2002	7255746	31
30	6883546	2109	3116454	1·4527397	9489646	1·0537801	1·3785985	2746256	2003	7253744	30
31	6885655	2110	3114345	1·4522946	9495176	1·0531664	1·3789792	2748259	2003	7251741	29
32	6887765	2108	3112235	1·4518498	9500709	1·0525531	1·3793602	2750262	2004	7249738	28
33	6889873	2108	3110127	1·4514055	9506245	1·0519401	1·3797416	2752266	2005	7247734	27
34	6891981	2108	3108019	1·4509616	9511784	1·0513275	1·3801233	2754271	2005	7245729	26
35	6894089	2106	3105911	1·4505181	9517326	1·0507153	1·3805054	2756276	2005	7243724	25
36	6896195	2107	3103805	1·4500749	9522871	1·0501034	1·3808877	2758281	2007	7241719	24
37	6898302	2105	3101698	1·4496322	9528420	1·0494920	1·3812704	2760288	2007	7239712	23
38	6900407	2105	3099593	1·4491898	9533971	1·0488809	1·3816534	2762295	2007	7237705	22
39	6902512	2105	3097488	1·4487478	9539526	1·0482702	1·3820367	2764302	2008	7235698	21
40	6904617	2104	3095383	1·4483063	9545083	1·0476598	1·3824204	2766310	2009	7233690	20
41	6906721	2103	3093279	1·4478651	9550644	1·0470498	1·3828044	2768319	2010	7231681	19
42	6908824	2103	3091176	1·4474243	9556208	1·0464402	1·3831887	2770329	2010	7229671	18
43	6910927	2102	3089073	1·4469839	9561774	1·0458310	1·3835734	2772339	2010	7227661	17
44	6913029	2102	3086971	1·4465439	9567344	1·0452221	1·3839584	2774349	2011	7225651	16
45	6915131	2101	3084869	1·4461043	9572917	1·0446136	1·3843437	2776360	2012	7223640	15
46	6917232	2100	3082768	1·4456651	9578494	1·0440055	1·3847294	2778372	2013	7221628	14
47	6919332	2100	3080668	1·4452262	9584073	1·0433977	1·3851153	2780385	2013	7219615	13
48	6921432	2099	3078568	1·4447878	9589655	1·0427904	1·3855017	2782398	2013	7217602	12
49	6923531	2099	3076469	1·4443497	9595241	1·0421833	1·3858883	2784411	2015	7215589	11
50	6925630	2098	3074370	1·4439120	9600829	1·0415767	1·3862753	2786426	2015	7213574	10
51	6927728	2097	3072272	1·4434748	9606421	1·0409704	1·3866626	2788441	2015	7211559	9
52	6929825	2097	3070175	1·4430379	9612016	1·0403645	1·3870503	2790456	2016	7209544	8
53	6931922	2096	3068078	1·4426013	9617614	1·0397589	1·3874383	2792472	2017	7207528	7
54	6934018	2096	3065982	1·4421652	9623215	1·0391538	1·3878266	2794489	2017	7205511	6
55	6936114	2095	3063886	1·4417295	9628819	1·0385489	1·3882153	2796506	2018	7203494	5
56	6938209	2095	3061791	1·4412941	9634427	1·0379445	1·3886043	2798524	2019	7201476	4
57	6940304	2094	3059696	1·4408592	9640037	1·0373404	1·3889936	2800543	2019	7199457	3
58	6942398	2093	3057602	1·4404246	9645651	1·0367367	1·3893832	2802562	2020	7197438	2
59	6944491	2093	3055509	1·4399904	9651268	1·0361333	1·3897732	2804582	2020	7195418	1
60	6946584		3053416	1·4395565	9656888	1·0355303	1·3901636	2806602		7193398	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif	Cotang.	Covers.	Secant	Dif.	Cosine	′
0	9·8337833	1355	10·1662167	9·4291809	9·9696559	2532	10·0303441	9·5024294	10·1358725	1179	9·8641275	60
1	9·8339188	1353	10·1660812	9·4295015	9·9699091	2533	10·0300909	9·5021388	10·1359904	1179	9·8640096	59
2	9·8340541	1353	10·1659459	9·4298220	9·9701624	2533	10·0298376	9·5018480	10·1361083	1180	9·8638917	58
3	9·8341894	1352	10·1658106	9·4301424	9·9704157	2532	10·0295843	9·5015572	10·1362263	1180	9·8637737	57
4	9·8343246	1351	10·1656754	9·4304626	9·9706689	2532	10·0293311	9·5012663	10·1363443	1181	9·8636557	56
5	9·8344597	1351	10·1655403	9·4307827	9·9709221	2533	10·0290779	9·5009752	10·1364624	1182	9·8635376	55
6	9·8345948	1349	10·1654052	9·4311027	9·9711754	2532	10·0288246	9·5006840	10·1365806	1183	9·8634194	54
7	9·8347297	1349	10·1652703	9·4314225	9·9714286	2532	10·0285714	9·5003927	10·1366989	1183	9·8633011	53
8	9·8348646	1348	10·1651354	9·4317422	9·9716818	2532	10·0283182	9·5001013	10·1368172	1184	9·8631828	52
9	9·8349994	1347	10·1650006	9·4320617	9·9719350	2532	10·0280650	9·4998098	10·1369356	1184	9·8630644	51
10	9·8351341	1347	10·1648659	9·4323811	9·9721882	2531	10·0278118	9·4995182	10·1370540	1186	9·8629460	50
11	9·8352688	1345	10·1647312	9·4327004	9·9724413	2532	10·0275587	9·4992264	10·1371726	1186	9·8628274	49
12	9·8354033	1345	10·1645967	9·4330196	9·9726945	2532	10·0273055	9·4989345	10·1372912	1186	9·8627088	48
13	9·8355378	1344	10·1644622	9·4333386	9·9729477	2531	10·0270523	9·4986425	10·1374098	1188	9·8625902	47
14	9·8356722	1344	10·1643278	9·4336574	9·9732008	2531	10·0267992	9·4983504	10·1375286	1188	9·8624714	46
15	9·8358066	1342	10·1641934	9·4339762	9·9734539	2532	10·0265461	9·4980582	10·1376474	1188	9·8623526	45
16	9·8359408	1342	10·1640592	9·4342948	9·9737071	2531	10·0262929	9·4977658	10·1377662	1190	9·8622338	44
17	9·8360750	1341	10·1639250	9·4346133	9·9739602	2531	10·0260398	9·4974734	10·1378852	1190	9·8621148	43
18	9·8362091	1340	10·1637909	9·4349316	9·9742133	2531	10·0257867	9·4971808	10·1380042	1191	9·8619958	42
19	9·8363431	1340	10·1636569	9·4352498	9·9744664	2531	10·0255336	9·4968881	10·1381233	1191	9·8618767	41
20	9·8364771	1338	10·1635229	9·4355678	9·9747195	2531	10·0252805	9·4965953	10·1382424	1193	9·8617576	40
21	9·8366109	1338	10·1633891	9·4358858	9·9749726	2531	10·0250274	9·4963024	10·1383617	1193	9·8616383	39
22	9·8367447	1337	10·1632553	9·4362036	9·9752257	2530	10·0247743	9·4960093	10·1384810	1193	9·8615190	38
23	9·8368784	1337	10·1631216	9·4365212	9·9754787	2531	10·0245213	9·4957162	10·1386003	1194	9·8613997	37
24	9·8370121	1335	10·1629879	9·4368387	9·9757318	2531	10·0242682	9·4954229	10·1387197	1195	9·8612803	36
25	9·8371456	1335	10·1628544	9·4371561	9·9759849	2530	10·0240151	9·4951295	10·1388392	1196	9·8611608	35
26	9·8372791	1334	10·1627209	9·4374734	9·9762379	2530	10·0237621	9·4948360	10·1389588	1197	9·8610412	34
27	9·8374125	1333	10·1625875	9·4377905	9·9764909	2531	10·0235091	9·4945424	10·1390785	1197	9·8609215	33
28	9·8375458	1332	10·1624542	9·4381075	9·9767440	2530	10·0232560	9·4942486	10·1391982	1197	9·8608018	32
29	9·8376790	1332	10·1623210	9·4384243	9·9769970	2530	10·0230030	9·4939547	10·1393179	1199	9·8606821	31
30	9·8378122	1331	10·1621878	9·4387411	9·9772500	2530	10·0227500	9·4936608	10·1394378	1199	9·8605622	30
31	9·8379453	1330	10·1620547	9·4390576	9·9775030	2530	10·0224970	9·4933667	10·1395577	1200	9·8604423	29
32	9·8380783	1329	10·1619217	9·4393741	9·9777560	2530	10·0222440	9·4930724	10·1396777	1201	9·8603223	28
33	9·8382112	1329	10·1617888	9·4396904	9·9780090	2530	10·0219910	9·4927781	10·1397978	1201	9·8602022	27
34	9·8383441	1328	10·1616559	9·4400066	9·9782620	2529	10·0217380	9·4924836	10·1399179	1202	9·8600821	26
35	9·8384769	1327	10·1615231	9·4403227	9·9785149	2530	10·0214851	9·4921891	10·1400381	1203	9·8599619	25
36	9·8386096	1326	10·1613904	9·4406386	9·9787679	2530	10·0212321	9·4918944	10·1401584	1203	9·8598416	24
37	9·8387422	1325	10·1612578	9·4409544	9·9790209	2529	10·0209791	9·4915996	10·1402787	1204	9·8597213	23
38	9·8388747	1325	10·1611253	9·4412700	9·9792738	2530	10·0207262	9·4913046	10·1403991	1205	9·8596009	22
39	9·8390072	1324	10·1609928	9·4415855	9·9795268	2529	10·0204732	9·4910096	10·1405196	1205	9·8594804	21
40	9·8391396	1323	10·1608604	9·4419009	9·9797797	2529	10·0202203	9·4907144	10·1406401	1206	9·8593599	20
41	9·8392719	1322	10·1607281	9·4422162	9·9800326	2530	10·0199674	9·4904191	10·1407607	1207	9·8592393	19
42	9·8394041	1322	10·1605959	9·4425313	9·9802856	2529	10·0197144	9·4901237	10·1408814	1208	9·8591186	18
43	9·8395363	1321	10·1604637	9·4428463	9·9805385	2529	10·0194615	9·4898282	10·1410022	1208	9·8589978	17
44	9·8396684	1320	10·1603316	9·4431611	9·9807914	2529	10·0192086	9·4895326	10·1411230	1209	9·8588770	16
45	9·8398004	1319	10·1601996	9·4434758	9·9810443	2529	10·0189557	9·4892368	10·1412439	1210	9·8587561	15
46	9·8399323	1319	10·1600677	9·4437904	9·9812972	2529	10·0187028	9·4889409	10·1413649	1210	9·8586351	14
47	9·8400642	1317	10·1599358	9·4441049	9·9815501	2529	10·0184499	9·4886449	10·1414859	1212	9·8585141	13
48	9·8401959	1317	10·1598041	9·4444192	9·9818030	2529	10·0181970	9·4883488	10·1416071	1211	[illegible]	12
49	9·8403276	1317	10·1596724	9·4447334	9·9820559	2528	10·0179441	9·4880525	10·1417282	1213	9·8582718	11
50	9·8404593	1315	10·1595407	9·4450475	9·9823087	2529	10·0176913	9·4877562	10·1418495	1213	9·8581505	10
51	9·8405908	1315	10·1594092	9·4453614	9·9825616	2529	10·0174384	9·4874597	10·1419708	1214	9·8580292	9
52	9·8407223	1314	10·1592777	9·4456752	9·9828145	2528	10·0171855	9·4871631	10·1420922	1215	9·8579078	8
53	9·8408537	1313	10·1591463	9·4459889	9·9830673	2529	10·0169327	9·4868664	10·1422137	1215	9·8577863	7
54	9·8409850	1312	10·1590150	9·4463024	9·9833202	2528	10·0166798	9·4865696	10·1423352	1216	[illegible]	6
55	9·8411162	1312	10·1588838	9·4466158	9·9835730	2529	10·0164270	9·4862726	10·1424568	1217	9·8575432	5
56	9·8412474	1311	10·1587526	9·4469291	9·9838259	2528	10·0161741	9·4859755	10·1425785	1217	9·8574215	4
57	9·8413785	1310	10·1586215	9·4472422	9·9840787	2528	10·0159213	9·4856783	10·1427002	1219	9·8572998	3
58	9·8415095	1309	10·1584905	9·4475552	9·9843315	2529	10·0156685	9·4853810	10·1428221	1218	9·8571779	2
59	9·8416404	1309	10·1583596	9·4478681	9·9845844	2528	10·0154156	9·4850836	10·1429439	1220	9·8570561	1
60	9·8417713		10·1582287	9·4481808	9·9848372		10·0151628	9·4847860	10·1430659		9·8569341	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	′

′	Sine	Dif.	Covers	Cosec.	Tang.	Cotang	Secant	Vers.	Dif.	Cosine	′
0	6946584	2092	3053416	1·4395565	9656888	1·0355303	1·3901636	2806602	2021	7193398	60
1	6948676	2091	3051324	1·4391231	9662511	1·0349277	1·3905544	2808624	2022	[illegible]	59
2	6950767	2091	3049233	1·4386906	9668137	1·0343254	1·3909453	2810646	2022	[illegible]	58
3	6952858	2091	3047142	1·4382574	9673767	1·0337235	1·3913366	2812667	2023	[illegible]	57
4	6954949	2090	3045051	1·4378251	9679399	1·0331220	1·3917283	2814690	2023	[illegible]	56
5	6957039	2089	3042961	1·4373932	9685035	1·0325208	1·3921203	2816713	2024	[illegible]	55
6	6959128	2089	3040872	1·4369616	9690674	1·0319199	1·3925127	2818737	2025	[illegible]	54
7	6961217	2088	3038783	1·4365305	9696316	1·0313195	1·3929054	2820762	2025	[illegible]	53
8	6963305	2087	3036695	1·4360997	9701962	1·0307194	1·3932985	2822787	2025	[illegible]	52
9	6965392	2087	3034608	1·4356693	9707610	1·0301196	1·3936918	2824813	2026	[illegible]	51
10	6967479	2086	3032521	1·4352393	9713262	1·0295203	1·3940856	2826839	2027	[illegible]	50
11	6969565	2086	3030435	1·4348097	9718917	1·0289212	1·3944796	2828866	2028	[illegible]	49
12	6971651	2085	3028349	1·4343805	9724575	1·0283226	1·3948740	2830894	2028	[illegible]	48
13	6973736	2085	3026264	1·4339516	9730236	1·0277243	1·3952688	2832922	2029	7167078	47
14	6975821	2084	3024179	1·4335231	9735901	1·0271263	1·3956639	2834951	2030	7165049	46
15	6977905	2083	3022095	1·4330950	9741569	1·0265287	1·3960593	2836981	2030	[illegible]	45
16	6979988	2083	3020012	1·4326672	9747240	1·0259315	1·3964551	2839011	2030	[illegible]	44
17	6982071	2082	3017929	1·4322399	9752914	1·0253346	1·3968512	2841041	2032	[illegible]	43
18	6984153	2081	3015847	1·4318129	9758591	1·0247381	1·3972477	2843073	2032	[illegible]	42
19	6986234	2081	3013766	1·4313863	9764272	1·0241419	1·3976445	2845105	2032	[illegible]	41
20	6988315	2081	3011685	1·4309600	9769956	1·0235461	1·3980416	2847137	2033	[illegible]	40
21	6990396	2080	3009604	1·4305342	9775643	1·0229506	1·3984391	2849170	2034	[illegible]	39
22	6992476	2079	3007524	1·4301087	9781333	1·0223555	1·3988369	2851204	2034	[illegible]	38
23	6994555	2078	3005445	1·4296836	9787027	1·0217608	1·3992351	2853238	2035	[illegible]	37
24	6996633	2078	3003367	1·4292588	9792724	1·0211664	1·3996336	2855273	2036	[illegible]	36
25	6998711	2078	3001289	1·4288345	9798424	1·0205723	1·4000325	2857309	2036	[illegible]	35
26	7000789	2077	2999211	1·4284105	9804127	1·0199786	1·4004317	2859345	2037	[illegible]	34
27	7002866	2076	2997134	1·4279868	9809833	1·0193853	1·4008313	2861382	2037	[illegible]	33
28	7004942	2076	2995058	1·4275636	9815543	1·0187923	1·4012312	2863419	2038	[illegible]	32
29	7007018	2075	2992982	1·4271407	9821256	1·0181997	1·4016315	2865457	2039	[illegible]	31
30	7009093	2074	2990907	1·4267182	9826973	1·0176074	1·4020321	2867496	2039	[illegible]	30
31	7011167	2074	2988833	1·4262961	9832692	1·0170155	1·4024330	2869535	2039	[illegible]	29
32	7013241	2073	2986759	1·4258743	9838416	1·0164239	1·4028344	2871574	2041	[illegible]	28
33	7015314	2073	2984686	1·4254529	9844141	1·0158326	1·4032360	2873615	2041	[illegible]	27
34	7017387	2072	2982613	1·4250319	9849871	1·0152418	1·4036380	2875656	2041	[illegible]	26
35	7019459	2072	2980541	1·4246112	9855603	1·0146512	1·4040403	2877697	2043	[illegible]	25
36	7021531	2070	2978469	1·4241909	9861339	1·0140610	1·4044430	2879740	2042	[illegible]	24
37	7023601	2071	2976399	1·4237710	9867079	1·0134712	1·4048461	2881782	2044	[illegible]	23
38	7025672	2069	2974328	1·4233514	9872821	1·0128817	1·4052494	2883826	2044	[illegible]	22
39	7027741	2070	2972259	1·4229323	9878567	1·0122925	1·4056532	2885870	2044	[illegible]	21
40	7029811	2068	2970189	1·4225134	9884316	1·0117038	1·4060573	2887914	2045	[illegible]	20
41	7031879	2068	2968121	1·4220950	9890069	1·0111153	1·4064617	2889959	2046	[illegible]	19
42	7033947	2067	2966053	1·4216769	9895825	1·0105272	1·4068665	2892005	2047	[illegible]	18
43	7036014	2067	2963986	1·4212592	9901584	1·0099394	1·4072717	2894052	2047	[illegible]	17
44	7038081	2066	2961919	1·4208418	9907346	1·0093520	1·4076772	2896099	2047	[illegible]	16
45	7040147	2066	2959853	1·4204248	9913112	1·0087649	1·4080831	2898146	2048	[illegible]	15
46	7042213	2065	2957787	1·4200082	9918881	1·0081782	1·4084893	2900194	2049	[illegible]	14
47	7044278	2064	2955722	1·4195920	9924654	1·0075918	1·4088958	2902243	2050	[illegible]	13
48	7046342	2064	2953658	1·4191761	9930429	1·0070058	1·4093026	2904293	2050	[illegible]	12
49	7048406	2063	2951594	1·4187605	9936208	1·0064201	1·4097100	2906343	2050	[illegible]	11
50	7050469	2063	2949531	1·4183454	9941991	1·0058348	1·4101177	2908393	2051	[illegible]	10
51	7052532	2062	2947468	1·4179306	9947777	1·0052497	1·4105257	2910444	2052	[illegible]	9
52	7054594	2061	2945406	1·4175161	9953566	1·0046651	1·4109340	2912496	2053	7087504	8
53	7056655	2061	2943345	1·4171020	9959358	1·0040807	1·4113427	2914549	2053	7085451	7
54	7058716	2060	2941284	1·4166883	9965154	1·0034968	1·4117517	2916602	2053	[illegible]	6
55	7060776	2059	2939224	1·4162749	9970953	1·0029131	1·4121612	2918655	2054	[illegible]	5
56	7062835	2059	2937165	1·4158619	9976756	1·0023298	1·4125709	2920709	2055	7079291	4
57	7064894	2059	2935106	1·4154493	9982562	1·0017469	1·4129810	2922764	2056	[illegible]	3
58	7066953	2058	2933047	1·4150370	9988371	1·0011642	1·4133915	2924820	2056	[illegible]	2
59	7069011	2057	2930989	1·4146251	9994184	1·0005819	1·4138024	2926876	2056	7073124	1
60	7071068		2928932	1·4142136	1000000	1·0000000	1·4142136	2928932		7071068	0
′	Cosine	Dif.	Vers.	Secant	Cotan.	Tang.	Cosec.	Covers	Dif.	Sine	′

′	Sine	Dif.	Cosec.	Verseds.	Tang.	Dif.	Cotang.	Covers.	Secant	Dif.	Cosine	′
0	9·8417713	1308	10·1582287	9·4481806	9·9848372	2528	10·0151628	9·4847860	10·1430619	1220	9·8569341	60
1	9·8419021	1307	10·1580979	9·4484934	9·9850900	2528	10·0149100	9·4844883	10·1431879	1221	9·8568121	59
2	9·8420328	1306	10·1579672	9·4488059	9·9853428	2528	10·0146572	9·4841905	10·1433100	1222	9·8566900	58
3	9·8421634	1305	10·1578366	9·4491183	9·9855956	2528	10·0144044	9·4838926	10·1434322	1223	9·8565678	57
4	9·8422939	1305	10·1577061	9·4494305	9·9858484	2528	10·0141516	9·4835946	10·1435545	1223	9·8564455	56
5	9·8424244	1304	10·1575756	9·4497426	9·9861012	2528	10·0138988	9·4832964	10·1436768	1224	9·8563232	55
6	9·8425548	1303	10·1574452	9·4500546	9·9863540	2528	10·0136460	9·4829981	10·1437992	1224	9·8562008	54
7	9·8426851	1303	10·1573149	9·4503664	9·9866068	2528	10·0133932	9·4826997	10·1439216	1226	9·8560784	53
8	9·8428154	1302	10·1571846	9·4506781	9·9868596	2527	10·0131404	9·4824012	10·1440442	1226	9·8559558	52
9	9·8429456	1301	10·1570544	9·4509897	9·9871123	2528	10·0128877	9·4821026	10·1441668	1226	9·8558332	51
10	9·8430757	1300	10·1569243	9·4513011	9·9873651	2528	10·0126349	9·4818038	10·1442894	1228	9·8557106	50
11	9·8432057	1299	10·1567943	9·4516124	9·9876179	2527	10·0123821	9·4815049	10·1444122	1228	9·8555878	49
12	9·8433356	1299	10·1566644	9·4519236	[illegible]	2528	10·0121294	9·4812059	10·1445350	1229	9·8554650	48
13	9·8434655	1298	10·1565345	9·4522346	9·9881234	2527	10·0118766	9·4809066	10·1446579	1229	9·8553421	47
14	9·8435953	1297	10·1564047	9·4525456	9·9883761	2528	10·0116239	9·4806075	10·1447808	1231	9·8552192	46
15	9·8437250	1297	10·1562750	9·4528564	9·9886289	2527	10·0113711	9·4803082	10·1449039	1231	9·8550961	45
16	9·8438547	1295	10·1561453	9·4531670	9·9888816	2528	10·0111184	9·4800087	10·1450270	1231	9·8549730	44
17	9·8439842	1295	10·1560158	9·4534776	9·9891344	2527	10·0108656	9·4797091	10·1451501	1233	9·8548499	43
18	9·8441137	1295	10·1558863	9·4537880	9·9893871	2528	10·0106129	9·4794093	10·1452734	1233	9·8547266	42
19	9·8442432	1293	10·1557568	9·4540982	9·9896399	2527	10·0103601	9·4791095	10·1453967	1234	9·8546033	41
20	9·8443725	1293	10·1556275	9·4544084	9·9898926	2527	10·0101074	9·4788095	10·1455201	1235	9·8544799	40
21	9·8445018	1292	10·1554982	9·4547184	9·9901453	2528	10·0098547	9·4785094	10·1456436	1235	9·8543564	39
22	9·8446310	1291	10·1553690	9·4550283	9·9903981	2527	10·0096019	9·4782092	10·1457671	1236	9·8542329	38
23	9·8447601	1290	10·1552399	9·4553380	9·9906508	2527	10·0093492	9·4779088	10·1458907	1237	9·8541093	37
24	9·8448891	1290	10·1551109	9·4556477	9·9909035	2527	10·0090965	9·4776083	10·1460144	1237	9·8539856	36
25	9·8450181	1289	10·1549819	9·4559572	9·9911562	2527	10·0088438	9·4773078	10·1461381	1238	9·8538619	35
26	9·8451470	1288	10·1548530	9·4562665	9·9914089	2527	10·0085911	9·4770070	10·1462619	1239	9·8537381	34
27	9·8452758	1287	10·1547242	9·4565758	9·9916616	2527	10·0083384	9·4767062	10·1463858	1240	9·8536142	33
28	9·8454045	1287	10·1545955	9·4568849	9·9919143	2527	10·0080857	9·4764052	10·1465098	1240	9·8534902	32
29	9·8455332	1286	10·1544668	9·4571939	9·9921670	2527	10·0078330	9·4761042	10·1466338	1241	9·8533662	31
30	9·8456618	1285	10·1543382	9·4575027	9·9924197	2527	10·0075803	9·4758030	10·1467579	1242	9·8532421	30
31	9·8457903	1285	10·1542097	9·4578115	9·9926724	2527	10·0073276	9·4755016	10·1468821	1243	9·8531179	29
32	9·8459188	1283	10·1540812	9·4581201	9·9929251	2527	10·0070749	9·4752002	10·1470064	1243	9·8529936	28
33	9·8460471	1283	10·1539529	9·4584286	9·9931778	2527	10·0068222	9·4748986	10·1471307	1244	9·8528693	27
34	9·8461754	1282	10·1538246	9·4587369	9·9934305	2527	10·0065695	9·4745969	10·1472551	1245	9·8527449	26
35	9·8463036	1282	10·1536964	9·4590451	9·9936832	2527	10·0063168	9·4742951	10·1473796	1245	9·8526204	25
36	9·8464318	1281	10·1535682	9·4593532	9·9939359	2527	10·0060641	9·4739932	10·1475041	1246	9·8524959	24
37	9·8465599	1280	10·1534401	9·4596612	9·9941886	2527	10·0058114	9·4736911	10·1476287	1247	9·8523713	23
38	9·8466879	1279	10·1533121	9·4599690	9·9944413	2527	10·0055587	9·4733889	10·1477534	1248	9·8522466	22
39	9·8468158	1278	10·1531842	9·4602767	9·9946940	2526	10·0053060	9·4730866	10·1478782	1248	9·8521218	21
40	9·8469436	1278	10·1530564	9·4605843	9·9949466	2527	10·0050534	9·4727841	10·1480030	1249	9·8519970	20
41	9·8470714	1277	10·1529286	9·4608918	9·9951993	2527	10·0048007	9·4724816	10·1481279	1250	9·8518721	19
42	9·8471991	1276	10·1528009	9·4611991	9·9954520	2527	10·0045480	9·4721789	10·1482529	1251	9·8517471	18
43	9·8473267	1276	10·1526733	9·4615063	9·9957047	2526	10·0042953	9·4718761	10·1483780	1251	9·8516220	17
44	9·8474543	1274	10·1525457	9·4618134	9·9959574	2527	10·0040427	9·4715732	10·1485031	1252	9·8514969	16
45	9·8475817	1274	10·1524183	9·4621203	9·9962100	2527	10·0037900	9·4712701	10·1486283	1252	9·8513717	15
46	9·8477091	1274	10·1522909	9·4624271	9·9964627	2527	10·0035373	9·4709669	10·1487535	1254	9·8512465	14
47	9·8478365	1272	10·1521635	9·4627338	9·9967154	2526	10·0032846	9·4706636	10·1488789	1254	9·8511211	13
48	9·8479637	1272	10·1520363	9·4630404	9·9969680	2527	10·0030320	9·4703602	10·1490043	1255	9·8509957	12
49	9·8480909	1271	10·1519091	9·4633468	9·9972207	2527	10·0027793	9·4700566	10·1491298	1256	9·8508702	11
50	9·8482180	1270	10·1517820	9·4636531	9·9974734	2526	10·0025266	9·4697530	10·1492554	1256	9·8507446	10
51	9·8483450	1270	10·1516550	9·4639593	9·9977260	2527	10·0022740	9·4694492	10·1493810	1257	9·8506190	9
52	9·8484720	1269	10·1515280	9·4642654	9·9979787	2527	10·0020213	9·4691452	10·1495067	1258	9·8504933	8
53	9·8485989	1268	10·1514011	9·4645713	9·9982314	2526	10·0017686	9·4688412	10·1496325	1258	9·8503675	7
54	9·8487257	1267	10·1512743	9·4648771	9·9984840	2527	10·0015160	9·4685370	10·1497583	1260	9·8502417	6
55	9·8488524	1267	10·1511476	9·4651828	9·9987367	2526	10·0012633	9·4682327	10·1498843	1260	9·8501157	5
56	9·8489791	1266	10·1510209	9·4654884	9·9989893	2527	10·0010107	9·4679283	10·1500103	1260	9·8499897	4
57	9·8491057	1265	10·1508943	9·4657938	9·9992420	2527	10·0007580	9·4676237	10·1501363	1262	9·8498637	3
58	9·8492322	1264	10·1507678	9·4660991	9·9994947	2526	10·0005053	9·4673190	10·1502625	1262	9·8497375	2
59	9·8493586	1264	10·1506414	9·4664043	9·9997473	2527	10·0002527	9·4670142	10·1503887	1263	9·8496113	1
60	9·8494850		10·1505150	9·4667093	1·0000000		10·0000000	9·4667093	10·1505150		9·8494850	0
′	Cosine	Dif.	Secant	Covers.	Cotang.	Dif.	Tang.	Verseds.	Cosec.	Dif.	Sine	′

Course		Dist. 1.		Dist. 2.		Dist. 3.		Dist. 4.		Dist. 5.		Course	
Pts	D	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	D	Pts.
	1	0·9998	0·0175	1·9997	0·0349	2·9995	0·0524	3·9994	0·0698	4·9992	0·0873	89	
	2	0·9994	0·0349	1·9988	0·0698	2·9982	0·1047	3·9976	0·1396	4·9970	0·1745	88	
0 ¼		0·9988	0·0491	1·9976	0·0981	2·9964	0·1472	3·9952	0·1963	[illegible]	0·2453		7 ¾
	3	0·9986	0·0523	1·9973	0·1047	2·9959	0·1570	3·9945	0·2093	[illegible]	0·2617	87	
	4	0·9976	0·0698	[illegible]	0·1395	2·9927	0·2093	3·9903	[illegible]	[illegible]	[illegible]	86	
	5	0·9962	0·0872	1·9924	0·1743	[illegible]	0·2615	[illegible]	[illegible]	[illegible]	[illegible]	85	
0 ½		0·9952	0·0980	1·9904	0·1960	2·9856	0·2941	[illegible]	[illegible]	[illegible]	[illegible]		7 ½
	6	0·9945	0·1045	[illegible]	0·2091	2·9836	0·3136	3·9781	0·4181	[illegible]	[illegible]	84	
	7	0·9925	0·1219	1·9851	0·2437	2·9776	0·3656	3·9702	0·4875	4·9627	[illegible]	83	
	8	0·9903	0·1392	1·9805	0·2783	2·9708	0·4175	3·9611	0·5567	4·9513	0·6959	82	
0 ¾		0·9892	0·1467	1·9784	0·2935	2·9675	0·4402	3·9567	0·5869	4·9459	0·7337		7 ¼
	9	0·9877	0·1564	1·9754	0·3129	2·9631	0·4693	3·9508	0·6257	4·9384	0·7822	81	
	[illegible]	0·9848	0·1736	1·9696	0·3473	2·9544	0·5209	3·9392	0·6946	4·9240	0·8682	80	
	11	0·9816	0·1908	1·9633	0·3816	2·9449	0·5724	3·9265	0·7632	4·9081	0·9540	79	
1		0·9808	0·1951	1·9616	0·3902	2·9424	0·5853	3·9231	0·7804	[illegible]	[illegible]		7
	12	0·9781	0·2079	1·9563	0·4158	2·9344	0·6237	3·9126	0·8316	4·8907	1·0396	78	
	13	0·9744	0·2250	1·9487	0·4499	2·9231	0·6749	3·8975	0·8998	4·8719	1·1248	77	
	14	0·9703	0·2419	1·9406	0·4838	2·9109	0·7258	3·8812	0·9677	4·8515	1·2096	76	
1 ¼		0·9700	0·2430	1·9401	0·4860	2·9101	0·7289	3·8801	0·9719	4·8502	1·2149		6 ¾
	15	0·9659	0·2588	1·9319	0·5176	2·8978	0·7765	3·8637	1·0353	[illegible]	[illegible]	75	
	16	0·9613	0·2756	1·9225	0·5513	2·8838	0·8269	3·8450	1·1025	4·8063	1·3782	74	
1 ½		0·9569	0·2903	1·9139	0·5806	2·8708	0·8709	3·8278	1·1611	4·7847	1·4514		6 ½
	17	0·9563	0·2924	1·9126	0·5847	2·8689	0·8771	3·8252	1·1695	4·7815	1·4619	73	
	18	0·9511	0·3090	1·9021	0·6180	2·8532	0·9271	3·8042	1·2361	4·7553	1·5451	72	
	19	0·9455	0·3256	1·8910	0·6511	2·8366	0·9767	3·7821	1·3023	4·7276	1·6278	71	
1 ¾		0·9415	0·3369	1·8831	0·6738	2·8246	1·0107	3·7662	1·3476	4·7077	1·6844		6 ¼
	20	0·9397	0·3420	1·8794	0·6840	2·8191	1·0261	3·7588	1·3681	4·6985	1·7101	70	
	21	0·9336	0·3584	1·8672	0·7167	2·8007	1·0751	3·7343	1·4335	4·6679	1·7918	69	
	22	0·9272	0·3746	1·8544	0·7492	2·7816	1·1238	3·7087	1·4984	4·6359	1·8730	68	
2		0·9239	0·3827	1·8478	0·7654	2·7716	1·1481	3·6955	1·5307	4·6194	1·9134		6
	[illegible]	0·9205	0·3907	1·8410	0·7815	2·7615	1·1722	3·6820	1·5629	4·6025	1·9537	67	
	24	0·9135	0·4067	1·8271	0·8135	2·7406	1·2202	3·6542	1·6269	4·5677	2·0337	66	
	25	0·9063	0·4226	1·8126	0·8452	2·7189	1·2679	3·6252	1·6905	4·5315	2·1131	65	
2 ¼		0·9040	0·4276	1·8080	0·8551	2·7120	1·2827	3·6160	1·7102	4·5199	2·1378		5 ¾
	26	0·8988	0·4384	1·7976	0·8767	2·6964	1·3151	3·5952	1·7535	4·4940	2·1919	64	
	27	0·8910	0·4540	1·7820	0·9080	2·6730	1·3620	3·5640	1·8160	4·4550	2·2700	63	
	28	0·8829	0·4695	1·7659	0·9389	2·6488	1·4084	3·5318	1·8779	4·4147	2·3474	62	
2 ½		0·8819	0·4714	1·7638	0·9428	2·6454	1·4142	3·5277	1·8856	4·4096	2·3570		5 ½
	29	0·8746	0·4848	1·7492	[illegible]	2·6239	1·4544	3·4985	1·9392	4·3731	2·4240	61	
	30	0·8660	0·5000	1·7321	1·0000	2·5981	1·5000	3·4641	2·0000	4·3301	2·5000	60	
2 ¾		0·8577	0·5141	1·7155	1·0282	2·5732	1·5423	3·4309	2·0564	4·2886	2·5705		5 ¼
	31	0·8572	0·5150	1·7143	1·0301	2·5715	1·5451	3·4287	2·0602	4·2858	2·5752	59	
	32	0·8480	0·5299	1·6961	[illegible]	2·5441	1·5898	3·3922	2·1197	4·2402	2·6496	58	
	33	0·8387	0·5446	1·6773	1·0893	2·5160	1·6339	3·3547	2·1786	4·1934	2·7232	57	
3		0·8315	0·5556	1·6629	1·1111	2·4944	1·6667	3·3259	2·2223	4·1573	2·7779		5
	34	0·8290	0·5592	1·6581	1·1184	2·4871	1·6776	3·3162	2·2368	4·1452	2·7960	56	
	35	0·8192	0·5736	1·6383	1·1472	2·4575	1·7207	3·2766	2·2943	4·0958	[illegible]	55	
	36	0·8090	0·5878	1·6180	1·1756	2·4271	1·7634	3·2361	2·3511	4·0451	2·9389	54	
3 ¼		0·8032	0·5957	1·6064	1·1914	2·4096	1·7871	3·2128	2·3828	4·0160	[illegible]		4 ¾
	37	0·7986	0·6018	1·5973	1·2036	2·3959	1·8054	3·1945	2·4073	3·9932	3·0091	53	
	38	0·7880	0·6157	1·5760	1·2313	2·3640	1·8470	3·1520	2·4626	3·9401	3·0783	52	
	39	0·7771	0·6293	1·5543	1·2586	2·3314	1·8880	3·1086	2·5173	3·8857	3·1466	51	
3 ½		0·7730	0·6344	1·5460	1·2688	2·3190	1·9032	3·0920	2·5376	[illegible]	3·1720		4 ½
	40	0·7660	0·6428	1·5321	1·2856	2·2981	1·9284	[illegible]	[illegible]	3·8302	3·2139	50	
	41	0·7547	0·6561	1·5094	1·3121	2·2641	1·9682	3·0188	2·6242	3·7735	3·2803	49	
	42	0·7431	0·6691	1·4863	1·3383	2·2294	2·0074	2·9726	2·6765	3·7157	3·3457	48	
3 ¾		0·7410	0·6716	1·4819	1·3431	2·2229	2·0147	2·9638	2·6862	3·7048	[illegible]		4 ¼
	43	0·7314	0·6820	1·4627	1·3640	2·1941	2·0460	2·9254	[illegible]	3·6568	[illegible]	47	
	44	0·7193	0·6947	1·4387	1·3893	2·1580	2·0840	2·8774	2·7786	3·5967	[illegible]	46	
4	45	0·7071	0·7071	1·4142	1·4142	2·1213	2·1213	2·8284	2·8284	3·5355	3·5355	45	4
Pts.	Deg.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Deg.	Pts.
		Dist. 1.		Dist. 2.		Dist. 3.		Dist. 4.		Dist. 5.			

Course		Dist. 6.		Dist. 7.		Dist. 8.		Dist. 9.		Dist. 10.		Course	
Pts.	°	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	D.	Pts.
	1	5·9991	0·1047	6·9989	0·1222	7·9988	0·1396	8·9986	0·1571	9·9985	0·1745	89	
	2	5·9963	0·2094	6·9957	0·2443	7·9951	0·2792	8·9945	0·3141	9·9939	0·3490	88	
0 ¼		5·9928	0·2944	6·9916	0·3435	7·9904	0·3925	8·9892	0·4416	9·9880	0·4907		7 ¾
	3	5·9918	0·3140	6·9904	0·3664	7·9890	0·4187	8·9877	0·4710	9·9863	0·5234	87	
	4	5·9854	0·4185	6·9829	0·4883	7·9805	0·5581	8·9781	0·6278	9·9756	0·6976	86	
	5	5·9772	0·5229	6·9734	0·6101	7·9696	0·6972	8·9658	0·7844	9·9619	0·8716	85	
0 ½		5·9711	0·5881	6·9663	0·6861	7·9615	0·7842	8·9567	0·8822	9·9518	0·9802		7 ½
	6	5·9671	0·6272	6·9617	0·7317	7·9562	0·8362	8·9507	0·9408	9·9452	1·0453	84	
	7	5·9553	0·7312	6·9478	0·8531	7·9404	0·9750	8·9329	1·0968	9·9255	1·2187	83	
	8	5·9416	0·8350	6·9319	0·9742	7·9221	1·1134	8·9124	1·2526	9·9027	1·3917	82	
0 ¾		5·9351	0·8804	6·9242	1·0271	7·9134	1·1738	8·9026	1·3206	9·8918	1·4673		7 ¼
	9	5·9261	0·9386	6·9138	1·0950	7·9015	1·2515	8·8892	1·4079	9·8769	1·5643	81	
	10	5·9088	1·0419	6·8937	1·2155	7·8785	1·3892	8·8633	1·5628	9·8481	1·7365	80	
	11	5·8898	1·1449	6·8714	1·3357	7·8530	1·5265	8·8346	1·7173	9·8163	1·9081	79	
1		5·8847	1·1705	6·8655	1·3656	7·8463	1·5607	8·8271	1·7558	9·8079	1·9509		7
	12	5·8689	1·2475	6·8470	1·4554	7·8252	1·6633	8·8033	1·8712	9·7815	2·0791	78	
	13	5·8462	1·3497	6·8206	1·5747	7·7950	1·7996	8·7693	2·0246	9·7437	2·2495	77	
	14	5·8218	1·4515	6·7921	1·6935	7·7624	1·9354	8·7327	2·1773	9·7030	2·4192	76	
1 ¼		5·8202	1·4579	6·7902	1·7009	7·7602	1·9438	8·7303	2·1868	9·7003	2·4298		6 ¾
	15	5·7956	1·5529	6·7615	1·8117	7·7274	2·0706	8·6933	2·3294	9·6593	2·5882	75	
	16	5·7676	1·6538	6·7288	1·9295	7·6901	2·2051	8·6513	2·4807	9·6126	2·7564	74	
1 ½		5·7416	1·7417	6·6986	2·0320	7·6555	2·3223	8·6125	2·6126	9·5694	2·9028		6 ½
	17	5·7378	1·7542	6·6941	2·0466	7·6504	2·3390	8·6067	2·6313	9·5630	2·9237	73	
	18	5·7063	1·8541	6·6574	2·1631	7·6085	2·4721	8·5595	2·7812	9·5106	3·0902	72	
	19	5·6731	1·9534	6·6186	2·2790	7·5642	2·6045	8·5097	2·9301	9·4552	3·2557	71	
1 ¾		5·6492	2·0213	6·5908	2·3582	7·5324	2·6951	8·4739	3·0320	9·4154	3·3689		6 ¼
	20	5·6382	2·0521	6·5778	2·3941	7·5175	2·7362	8·4572	3·0782	9·3969	3·4202	70	
	21	5·6015	2·1502	6·5351	2·5086	7·4686	2·8669	8·4022	3·2253	9·3358	3·5837	69	
	22	5·5631	2·2475	6·4903	2·6222	7·4175	2·9969	8·3447	3·3715	9·2718	3·7461	68	
2		5·5433	2·2961	6·4672	2·6788	7·3910	3·0615	8·3149	3·4442	9·2388	3·8268		6
	23	5·5230	2·3444	6·4435	2·7351	7·3640	3·1258	8·2845	3·5166	9·2050	3·9073	67	
	24	5·4813	2·4404	6·3948	2·8472	7·3084	3·2539	8·2219	3·6606	9·1355	4·0674	66	
	25	5·4378	2·5357	6·3442	2·9583	7·2505	3·3809	8·1568	3·8036	9·0631	4·2262	65	
2 ¼		5·4239	2·5653	6·3279	2·9929	7·2319	3·4204	8·1359	3·8480	9·0399	4·2756		5 ¾
	26	5·3928	2·6302	6·2916	3·0686	7·1904	3·5070	8·0891	3·9453	8·9879	4·3837	64	
	27	5·3460	2·7239	6·2370	3·1779	7·1280	3·6319	8·0191	4·0859	8·9101	4·5399	63	
	28	5·2977	2·8168	6·1806	3·2863	7·0636	3·7558	7·9465	4·2252	8·8295	4·6947	62	
2 ½		5·2915	2·8284	6·1734	3·2998	7·0554	3·7712	7·9373	4·2426	8·8192	4·7140		5 ½
	29	5·2477	2·9089	6·1223	3·3937	6·9970	3·8785	7·8716	4·3633	8·7462	4·8481	61	
	30	5·1962	3·0000	6·0622	3·5000	6·9282	4·0000	7·7942	4·5000	8·6603	5·0000	60	
2 ¾		5·1464	3·0846	6·0041	3·5987	6·8618	4·1128	7·7196	4·6269	8·5778	5·1410		5 ¼
	31	5·1430	3·0902	6·0002	3·6053	6·8573	4·1203	7·7145	4·6353	8·5717	5·1504	59	
	32	5·0883	3·1795	5·9363	3·7094	6·7844	4·2394	7·6324	4·7693	8·4805	5·2992	58	
	33	5·0320	3·2678	5·8707	3·8125	6·7094	4·3571	7·5480	4·9018	8·3867	5·4464	57	
3		4·9888	3·3334	5·8203	3·8890	6·6518	4·4446	7·4832	5·0001	8·3147	5·5557		5
	34	4·9742	3·3552	5·8033	3·9144	6·6323	4·4735	7·4613	5·0327	8·2904	5·5919	56	
	35	4·9149	3·4415	5·7341	4·0150	6·5532	4·5886	7·3724	5·1622	8·1915	5·7358	55	
	36	4·8541	3·5267	5·6631	4·1145	6·4721	4·7023	7·2812	5·2901	8·0902	5·8779	54	
3 ¼		4·8192	3·5742	5·6225	4·1699	6·4257	4·7656	7·2289	5·3613	8·0321	5·9570		4 ¾
	37	4·7918	3·6109	5·5904	4·2127	6·3891	4·8145	7·1877	5·4163	7·9864	6·0182	53	
	38	4·7281	3·6940	5·5161	4·3096	6·3041	4·9253	7·0921	5·5409	7·8801	6·1566	52	
	39	4·6629	3·7759	5·4400	4·4052	6·2172	5·0346	6·9943	5·6639	7·7715	6·2932	51	
3 ½		4·6381	3·8064	5·4111	4·4408	6·1841	5·0751	6·9571	5·7095	7·7301	6·3439		4 ½
	40	4·5963	3·8567	5·3623	4·4995	6·1284	5·1423	6·8944	5·7851	7·6604	6·4279	50	
	41	4·5283	3·9363	5·2830	4·5924	6·0377	5·2485	6·7924	5·9045	7·5471	6·5606	49	
	42	4·4589	4·0148	5·2020	4·6839	5·9452	5·3530	6·6883	6·0222	7·4314	6·6913	48	
3 ¾		4·4457	4·0294	5·1867	4·7009	5·9276	5·3725	6·6686	6·0440	7·4095	6·7156		4 ¼
	43	4·3881	4·0920	5·1195	4·7740	5·8508	5·4560	6·5822	6·1380	7·3135	6·8200	47	
	44	4·3160	4·1680	5·0354	4·8626	5·7547	5·5573	6·4741	6·2519	7·1934	6·9466	46	
4	45	4·2426	4·2426	4·9497	4·9497	5·6569	5·6569	6·3640	6·3640	7·0711	7·0711	45	4
Pts.	Deg.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Deg.	Pts.
		Dist. 6.		Dist. 7.		Dist. 8.		Dist. 9.		Dist. 10.			

D	Arc	De	Arc	De	Arc	'	Arc	"	Arc	'''	A
1	·0174533	61	1·0646508	121	2·1118484	1	2909	1	48	1	1
2	·0349066	62	1·0821041	122	2·1293017	2	5818	2	[illegible]	2	[illegible]
3	·0523599	63	1·0995574	123	2·1467550	3	8727	3	145	3	2
4	·0698132	64	1·1170107	124	2·1642083	4	11636	4	194	4	3
[illegible]	·0872665	65	1·1344640	125	2·1816616	5	14544	5	242	5	4
6	·1047198	66	1·1519173	126	2·1991149	6	17453	6	291	6	5
7	·1221730	67	1·1693706	127	2·2165682	7	20362	7	339	7	6
8	·1396263	[illegible]	1·1868239	128	2·2340214	8	23271	[illegible]	388	8	6
9	·1570796	[illegible]	1·2042772	129	2·2514747	9	26180	9	436	9	7
10	·1745329	70	1·2217305	130	2·2689280	10	29089	10	[illegible]	10	8
11	·1919862	71	1·2391838	131	2·2863813	11	31998	11	533	11	9
12	·2094395	72	1·2566371	132	2·3038346	12	34907	[illegible]	582	12	10
13	·2268928	73	1·2740904	133	2·3212879	13	37815	13	630	[illegible]	11
14	·2443461	74	1·2915436	134	2·3387412	14	40724	14	679	14	11
15	·2617994	75	1·3089969	135	2·3561945	15	[illegible]	15	727	15	12
16	·2792527	76	1·3264502	136	2·3736478	16	46542	16	776	16	13
17	·2967060	77	1·3439035	137	2·3911011	17	49451	17	[illegible]	17	14
18	·3141593	78	1·3613568	138	2·4085544	18	52360	18	[illegible]	18	15
19	·3316126	[illegible]	1·3788101	139	2·4260077	19	55269	19	921	19	15
20	·3490659	80	1·3962634	140	2·4434610	20	58178	20	970	20	16
21	·3665191	81	1·4137167	141	2·4609142	21	61087	21	1018	21	17
22	·3839724	82	1·4311700	142	2·4783675	22	63995	22	1067	22	18
23	·4014257	[illegible]	1·4486233	143	2·4958208	23	66904	23	1115	[illegible]	19
24	·4188790	84	1·4660766	144	2·5132741	24	69813	24	1164	[illegible]	19
25	·4363323	85	1·4835299	145	2·5307274	25	72722	25	1212	25	20
26	·4537856	86	1·5009832	146	2·5481807	26	75631	26	1261	26	21
27	·4712389	[illegible]	1·5184364	147	2·5656340	27	78540	27	1309	27	22
28	·4886922	88	1·5358897	148	2·5830873	28	81449	28	1357	28	23
29	·5061455	89	1·5533430	149	2·6005406	29	84358	29	1406	[illegible]	23
30	·5235988	90	1·5707963	150	2·6179939	30	87266	30	1454	30	24
31	·5410521	91	1·5882496	151	2·6354472	31	90175	31	1503	31	25
32	·5585054	92	1·6057029	152	2·6529005	32	93084	32	1551	32	26
33	·5759587	93	1·6231562	153	2·6703538	33	[illegible]	33	1599	33	27
34	·5934119	94	1·6406095	154	2·6878070	34	98902	[illegible]	1648	34	27
35	·6108652	95	1·6580628	155	2·7052603	35	101811	35	1697	35	28
36	·6283185	96	1·6755161	156	2·7227136	36	104720	[illegible]	1745	36	29
37	·6457718	97	1·6929694	157	2·7401669	37	107629	37	1794	37	30
[illegible]	·6632251	98	1·7104227	158	2·7576202	38	110538	38	1842	[illegible]	31
39	·6806784	99	1·7278760	159	2·7750735	39	113446	39	1891	39	32
40	·6981317	100	1·7453293	160	2·7925268	40	116355	40	1939	[illegible]	32
41	·7155850	101	1·7627825	161	2·8099801	41	119264	41	[illegible]	41	33
42	·7330383	102	[illegible]	162	2·8274334	42	122173	42	2036	[illegible]	34
43	·7504916	103	1·7976891	163	2·8448867	[illegible]	125082	43	2085	[illegible]	35
44	·7679449	104	1·8151424	164	2·8623400	[illegible]	127991	44	2133	44	36
45	·7853982	105	1·8325957	165	2·8797933	45	130900	[illegible]	2182	45	36
46	·8028515	106	1·8500490	166	2·8972466	46	133809	46	2230	46	37
47	·8203047	107	1·8675023	167	2·9146999	47	136717	47	2279	47	38
48	·8377580	108	1·8849556	168	2·9321531	48	139626	48	2327	48	39
49	·8552113	109	1·9024089	169	2·9496064	49	142535	49	[illegible]	49	40
50	·8726646	110	1·9198622	170	2·9670597	50	145444	50	2424	50	40
51	·8901179	111	1·9373155	171	2·9845130	51	148353	51	2473	51	41
52	·9075712	112	1·9547688	172	3·0019663	52	151262	52	2521	52	42
53	·9250245	113	1·9722220	173	3·0194196	53	154171	53	2570	[illegible]	43
54	·9424778	114	1·9896753	174	3·0368729	54	157080	54	2618	54	44
55	·9599311	115	2·0071286	175	3·0543262	55	159989	55	2666	55	44
56	·9773844	116	2·0245819	176	3·0717795	56	162897	56	2715	56	45
57	·9948377	117	2·0420352	177	3·0892328	57	165806	57	2763	57	46
58	1·0122910	118	2·0594885	178	3·1066861	58	168715	58	2812	58	47
59	1·0297443	119	2·0769418	179	3·1241394	59	171624	59	2860	59	48
60	1·0471976	120	2·0943951	180	3·1415927	60	174533	60	2909	60	48
D	Arc	De	Arc	De	Arc	'	Arc	"	Arc	'''	A

CL	HYP. LO.	CL	HYP. LO.	CL	HYP. LO.	CL	HYP. LO.
·01	·02302585	·26	·59867212	·51	1·17431840	·76	1·74996467
·02	·04605170	·27	·62169798	·52	1·19734425	·77	1·77299052
·03	·06907755	·28	·64472383	·53	1·22037010	·78	1·79601637
·04	·09210340	·29	·66774968	·54	1·24339595	·79	1·81904222
·05	·11512925	·30	·69077553	·55	1·26642180	·80	1·84206807
·06	·13815511	·31	·71380138	·56	1·28944765	·81	1·86509393
·07	·16118096	·32	·73682723	·57	1·31247350	·82	1·88811978
·08	·18420681	·33	·75985308	·58	1·33549935	·83	1·91114563
·09	·20723266	·34	·78287893	·59	1·35852520	·84	1·93417148
·10	·23025851	·35	·80590478	·60	1·38155106	·85	1·95719733
·11	·25328436	·36	·82893063	·61	1·40457691	·86	1·98022318
·12	·27631021	·37	·85195648	·62	1·42760276	·87	2·00324903
·13	·29933606	·38	·87498234	·63	1·45062861	·88	2·02627488
·14	·32236191	·39	·89800819	·64	1·47365446	·89	2·04930073
·15	·34538776	·40	·92103404	·65	1·49668031	·90	2·07232658
·16	·36841361	·41	·94405989	·66	1·51970616	·91	2·09535243
·17	·39143947	·42	·96708574	·67	1·54273201	·92	2·11837829
·18	·41446532	·43	·99011159	·68	1·56575786	·93	2·14140414
·19	·43749117	·44	1·01313744	·69	1·58878371	·94	2·16442999
·20	·46051702	·45	1·03616329	·70	1·61180957	·95	2·18745584
·21	·48354287	·46	1·05918914	·71	1·63483542	·96	2·21048169
·22	·50656872	·47	1·08221499	·72	1·65786127	·97	2·23350754
·23	·52959457	·48	1·10524084	·73	1·68088712	·98	2·25653339
·24	·55262042	·49	1·12826670	·74	1·70391297	·99	2·27955924
·25	·57564627	·50	1·15129255	·75	1·72693882	1·00	2·30258509

A TABLE of Rumbs, shewing the Degrees, Minutes, and Seconds, that every Point and Quarter-point of the Compass makes with the Meridian. Tab. 14.

North		Pts.	qr.	°	′	″	Pts.	qr.	South	
		0	1	2	48	45	0	1		
		0	2	5	37	30	0	2		
		0	3	8	26	15	0	3		
N b E	N b W	1	0	11	15	0	1	0	S b E	S b W
		1	1	14	3	45	1	1		
		1	2	16	52	30	1	2		
		1	3	19	41	15	1	3		
NNE	NNW	2	0	22	30	0	2	0	SSE	SSW
		2	1	25	18	45	2	1		
		2	2	28	7	30	2	2		
		2	3	30	56	15	2	3		
NE b N	NW b N	3	0	33	45	0	3	0	SE b S	SW b S
		3	1	36	33	45	3	1		
		3	2	39	22	30	3	2		
		3	3	42	11	15	3	3		
NE	NW	4	0	45	0	0	4	0	SE	SW
		4	1	47	48	45	4	1		
		4	2	50	37	30	4	2		
		4	3	53	26	15	4	3		
NE b E	NW b W	5	0	56	15	0	5	0	SE b E	SW b W
		5	1	59	3	45	5	1		
		5	2	61	52	30	5	2		
		5	3	64	41	15	5	3		
ENE	WNW	6	0	67	30	0	6	0	ESE	WSW
		6	1	70	18	45	6	1		
		6	2	73	7	30	6	2		
		6	3	75	56	15	6	3		
E b N	W b N	7	0	78	45	0	7	0	E b S	W b S
		7	1	81	33	45	7	1		
		7	2	84	22	30	7	2		
		7	3	87	11	15	7	3		
East	West	8	0	90	0	0	8	0	East	West

I. *In Gardiner's Edition of* 1742, *in 4to.*

In the Logarithms.

101213	3630
14	4059
15	4488
16	4917
17	5346
21308	5427
26719	8202
29315	0899
34259	7747
34728	6798
35704	7534
51193	2406
59502	5316
60844	2178
64445	1892
65640	1686
66607	5199
67329	2022
69519	1035
71492	2574
73338	3291
73983	1319
74294	9537
74742	5647
75561	2977
76000	8136
76041	0478
76031	9907
77316	2694
82958	8583

Absolute Numbers.

6462	6492
8668	8688
9167	9157

In the Sines.

0°	40′	45″	8·0738436
0	59	12	8·2360264
1	7	48	8·2949277
1	24	0	8·3879622
2	4	0	8·5570536
11	24	10	9·2960174
13	27	30	9·3668676
32	3	50	9·7249837
37	26	20	275 diff.
37	26	50	275 diff.
52	32	40	162 diff.
55	43	10	9·9171322
65	4	20	97 diff.
65	4	30	98 diff.
65	4	30	9·9575403
70	30	50	9·9743838
75	53	30	52 diff.
77	22	20	9·9893657
82	0	40	9·9957646
85	55	0	9·9988962

In the Tangents.

3°	21′	0″	8·7674175
8	36	20	9·1799393
10	18	50	9·2564267
13	21	30	9·3756001
43	56	30	9·9839523
44	12	20	9·9879549
68	19	20	10·4006638
71	21	0	10·4717147
73	18	0	10·5228579
77	1	40	10·6375975
84	7	10	10·9871756
86	39	40	11·2340287
87	19	20	11·3300317
88	20	30	11·5383295
89	55	10	12·8520268
L to 20 places, 916.			96189

Expl. & Use, p. 11, l. 4 bot. M$\frac{1}{4}$, m$\frac{1}{4}$.

Note, that some very few places are omitted where a figure does not perfectly appear, as they are not real errors, and cannot mislead, but may easily be filled up by the differences.—It is also to be observed, that some of these errors in both the books are not in all copies of the same edition, as I have experienced by collating divers copies: a circumstance probably occasioned by types sometimes working out at the press, and carelessly supplied again; and sometimes by discovering and correcting errors after the copies of some sheets have been but partly worked off. And the same in the French edition following.—All the real errors in both books are brought together in these tables, both those I have seen printed elsewhere, and those received by private communication, besides upwards of twenty detected by myself, in comparing the proofs of my book with the like parts of the others.

II. *In the Avignon Edition of* 1770.

In the Logarithms.

100288	4897
100499	6174
101213	3630
14	4059
15	4488
16	4917
17	5346
14151	7871
17740	9536
24626	3939
25803	6702
33071	4473
34259	7747
34728	6798
37268	3361
37696	2953
38119	1415
42431	6833
43284	3274
44218	5991
44781	0988
46309	6654
46559	0036
51193	2106
54681	8364
58987	7563
59502	5316
59889	3471
60844	2178
63064	7815
64149	1899
64347	5283
64445	1892
64881	1175
66128	3256
68761	3422
68859	9607
69339	9776
69519	1035
69533	1910
70076	5693
71021	3864
74703	3380
81674	0838
84398	3068
85328	0916
86486	9458
89322	9584
89680	6956
94841	9961
98614	3408

Absolute Numbers.

4770	4670
3520	5520
7235	7135
7635	7535

Sheet *e* last line, M½, m½.

Pro. Parts.

Sh. l.	Dif. 94
9	85

In the Sines.

0°	6′	36″	7·2832698
0	15	36	7·6568492
0	37	3	8·0325059
0	45	30	8·1217248
2	10	35	8·5795094
2	34	53	8·6535839
2	37	28	8·6607629
2	39	23	8·6660134
3	11	38	8·7459722
3	26	47	8·7789797
18	44	20	621 diff.
45	4	50	9·8500947
65	4	20	97 diff.
		30	98 diff.
		30	9·9575408
67	17	30	9·9649579
75	53	30	52 diff.
88	52	10	9·9999154

In the Tangents.

0°	9′	17″	7·4314311
0	11	47	7·5349960
0	14	23	7·6215882
0	23	38	7·8372579
0	24	16	7·8487435
0	24	54	7·8599331
0	37	15	8·0348694
1	19	15	8·3628023
1	22	57	8·3826268
3	0	7	8·7196777
3	6	28	8·7347535
3	19	9	8·7633926
3	54	38	8·8347909
5	5	0	8·9491676
17	39	40	9·5029635
23	5	20	9·6297224
23	22	0	9·6355321
35	4	40	9·8464809
67	13	50	10·3770260
73	20	50	10·5241600
88	3	10	11·4685399

Sheet S 1	79 deg.
T 4	12° 60′

Table to 20 places.

59	77085·20 &c.
825	91645·39485
1083	03462·84566

Table III. of the same.

Diff. II. ib. 00127	53175·47 &c.
Logist. Log.	0′ 52″
Hyp. L. 6·75	1·9095425

In the last page.

line 20	0·0019633
22	1·2403375
24	1·2403375
26	5·8455077

III. The following List of Errors in Callet's *Tables Portatives* have been discovered in reading his book with the proof-sheets of the 2d edition of my Tables.

In Callet's Tables Portatives, Paris 1783.

In the Introduction.

Page 9, line 1, *read* L'b
41, — 9, — compris c
19, — Lc
44, — 10, — L'c
46, — 28, — 2p.

In the Logarithms.

47891	2539
60844	2178
64113	9461
64445	1892
64547	8761
70357	3078
76872	7682
77054	8518
78050	3729
99018	7142

IV. *In Taylor's Tables, London* 1792; *besides those mentioned in the book itself.*

Page 56, line 32, for + 2, read + L. 2
57, — 10 and 11, read only *one* root
— 16, for $\frac{p}{}$ read $\frac{p}{8}$
— 25, for $\frac{3}{}$ read $\frac{3}{2}$
— 27, for 4p read ½p

In the Sines.

4°	23′	38″	43007
4	23	39	43281

V. *In Callet's Stereotype Edition, Paris* 1795.

In the Logarithms.

1014	3795
24626	3939
33071	4473
43130	7795
53919	7418
56246	0916
57319	2986
81674	0838
99018	7142

In Table I. to 20 Places.

965	56538
1071	94608
1085	85148
1105	21729
1115	84779
1125	47981
1135	29741

In Table III. of the same.

00132 Dif. 34589

In the Differences.

185 — 1	19
185 — 3	56
66 — 6	40

In the Tangents.

0°	23′	38″	2579
0	24	54	9331

VI. *In the Table Trigonométriques Décimales, of* 1801.

In the Logarithms.

Num.	Log.
24626	3939
33071	4473
53919	7418
81674	0838

Printed by S. Hamilton, Weybridge.